American Journal
of
ORTHODONTICS
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VOL. 37 FEBRUARY, 1951 No. 2

Original Articles

TRENDS IN HEALTH SERVICE*

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REGARDLESS of how serious this subject under discussion is, the Doctor's reference to my political affiliations makes me think of a story that has been going around on the Hill and through Congress in just the last ten days or so with reference to compulsory health insurance. It has a political angle, but I am going to tell it.

It seems that we must look into the future just a few years—1956—and President Truman is still President. John Smith, a good Republican, wakes up one night with a terrific pain over McBurney's point. So he jumps up and dresses and runs down to the Social Security socialized medical center. He goes in through the front door and finds himself in a huge room with many doors leading out of it. Over one door it says, "Rheumatism"; over another door it says, "Diabetes"; over another door it says, "Heart Conditions"; over another door it says, "Cancer," and over another door it says "Appendicitis." Well, John notes the location of his pain and it indicates to him he has appendicitis. He goes through the door marked "Appendicitis." When he gets into that room he finds two doors leading out of it into a second room. Over one door is the word "Acute" and over the other door is the word "Chronic." The way he feels he takes the "Acute" door, which leads him into a third room. He finds when he gets into the third room still two doors going out of that room, one marked "Male" and one marked "Female." He takes the "Male" door, of course, and gets into what is the last room. Over the two doors leading out of that room are signs. One says "Democratic" and the other one says "Republican." He takes the "Republican" door and finds himself out in the alley.

I wish to discuss with you this evening some of the things that have been happening on the Hill in Washington in the 81st Congress with reference to trends in health services. Perhaps I should say social trends in health

*A talk given by United States Senator Lester C. Hunt before the American Association of orthodontists, May 8, 9, 10, 11, 1950, Chicago, Ill.

services. You may be surprised to know that so far in the 81st Congress, nearly all in the first session, some 300 bills have been introduced directly or indirectly affecting our profession. Fortunately, very few of them have gotten out of committees.

There are five of these bills I would say are important. I will mention them later.

First I want to mention some few minor things that are of interest especially to those of us in the practice of dentistry. We thought we were exceptionally fortunate for the first time when we had an authorization and then an appropriation for dental research. There was $100,000 appropriated in the first session for plans and specifications for a building, for a dental research institute at Bethesda, Md. Very unfortunately, however, the Department of the Budget has ruled that there is already ample facility at the Naval Hospital at Bethesda for this research work and as I understand now, I am sorry to report, the building will not be built.

We were fortunate in another minor matter, namely, to get greater autonomy for the physicians and for the dentists in the Armed Services. It passed the Senate, but has not as yet passed the House. We were fortunate in getting some increases in grade and in salaries for dentists and physicians in the Veterans Administration. We were hopeful the passage of that act would invite and get a considerable increase in the number of young men in the Veterans Administration. However, we were not successful in doing so.

The Senate also passed a bill which provides for a study of the amount and the distribution and the effects of illness in the United States. Without a question of a doubt that would include a broad survey of the dental health and of dental practice in this country. Now should that report come out, may I say loaded or adverse to the present methods and the past methods of practicing medicine and dentistry in the United States, it could be disastrous to us and might be used as a basis at some future time for legislation that we do not approve.

Of these major bills of which I speak, there were five reported by the committee without a dissenting vote, passed by the Senate unanimously, and to my way of thinking every one of the five should be written into our law.

First, "Federal Aid to Medical Education"; that bill provided $500 a month to each school for each student taking medicine, $400 for each student taking dentistry, $300 for each student taking nursing, $250, I believe, for each dental hygienist, and $400 for each sanitary engineer. Then it also provided a like amount for every student whom each school enrolled over the number enrolled the previous year. It also provided $50,000,000 for capital outlay for professional schools. That bill still is in the committee. It has been in committee for over a year. I was talking to Congressman Price about it the other day. He was a little doubtful whether it was going to be acted upon favorably in the House. It is going to be a great disappointment to our dental schools that are not tax-supported if the bill does not pass. I can say to you—and I know whereof I speak—that many of our denominational

schools that do not have any tax revenue are finding it very difficult to meet their expenditures, and after the GI money is discontinued it is going to be doubly difficult for them to continue operations.

The second bill, which is the law of the land, has to do with the hospital construction. The Federal government has made available $150,000,000 each year for the next five years to be matched by states, if they care to, which will make a total in the five-year period of $1,025,000,000 for hospital construction. That should meet our entire requirements in 1954 for hospital beds.

The other three bills I have in mind, the "Local Public Health Units Act," the "Research Institute Act," and the "School Health Services Act," have as yet not been acted upon by the House, but I think I should say to you that by all odds the most important piece of legislation having to do with the health services that has been before the 81st Congress was known as "Reorganization Plan No. 1." That plan provides for a new Department of Public Welfare with Cabinet status and in that department are to be all of the functions—and that is an important word in this Act—all of the functions of the Surgeon General, all of the functions of the Commissioner of Education, and all of the functions of the present Social Security Administration. As you know, the gentleman to be appointed as administrator of that department and with the Cabinet status was Mr. Oscar Ewing. There was no question about it. Many of us strenuously opposed the passage of that Reorganization Act because Mr. Ewing had said in Committee hearings—these are his words—"I will not relent," "I will not relent from pressing for compulsory health insurance." That was a mighty tough fight in the Senate.

The morning that we were to vote, some ten Senators were invited down to the White House. Throughout the day telephone calls kept coming to all of the Senators from the White House and from other interested parties. Just before we voted, a message was read from the President urging the passage of the Reorganization Act. However, there were three of us, Senator Fulbright, Senator Taft, and myself, who introduced a resolution, No. 147, to disapprove. I am happy to report to you we were successful. The Reorganization Act was defeated by a vote of 62 to 30, 92 Senators voting. In the year and one-half I have been in the Senate I know of no other bill or no other Act in which 92 Senators voted. I mention that simply to impress upon you the tremendous interest that was manifest in this Reorganization Act. Frankly, my friends, I think it was an insult to the medical and dental professions to place these two great health services in an inferior position under the Department of Welfare, and, of all things, to put all the health services and functions under a lay administrator. Many of us took that matter very seriously but I want to say to you something that your President has just said to you, "We must not consider the matter closed." Tomorrow is another day and we may have like acts to face us in the future.

I want to mention briefly some things not exactly pertaining to the practice of our profession but that point up something that is happening. I flew into Chicago from Kansas City last night, in order to conserve time. I used a

certain airline. I could have used any of them. My fare would have been the same. Had I decided to come to Chicago by rail on any of the four or five routes that come into Chicago, my fare would have been the same regardless of what route I had chosen. Had I driven down, stopped at any filling station of four on the corner, the gasoline and oil would have cost me exactly the same. A few years ago I asked for some bids from contractors on the building of a new home, and I was surprised when they submitted to me almost identically the same price for the building of that home. I got to thinking about it. Why should they not? They would have to pay their labor the same. The carpenter and bricklayer and plasterer and electrician would not be working for what any of them wanted to work for per hour but what the unions told them to work for. Regardless of the class of work they would do they would all be paid the same.

A few years ago during the war in order to encourage agriculture, we started guaranteeing price supports so the farmer in Missouri, Kansas, Illinois, or Wyoming for a bushel of wheat, potatoes, or what not, would get the same price, regardless of what it cost to be produced.

What I am trying to say to you is, has it occurred to you that perhaps only in the professions do we have as yet free and competitive individual enterprise? We have it but if we are not careful, if compulsory health insurance is enacted, we will lose that great asset, free, individual, competitive enterprise.

What is the reason for all of this, Ladies and Gentlemen? I have here in my hand a bill introduced into the Senate. It is a bill to provide a program of national health insurance, 163 pages.

There never was a document written as important to you, be you a physician or dentist, as this bill, and if you have not read it you certainly should get a copy of it. If you do not have time to read and study it all, please read Title 7, for that is the compulsory feature. That bill was sent down to us with a 3,000 word message urging its adoption. At the same time over the radio and through the press a barrage was loosened against our two professions of medicine and dentistry. Many things were said about our present health services. One was, you all will remember it, that 325,000 people die a year because of inadequate health service. Remember, that was broadcast nationally over the radio and appeared in the press. At the same time we were told things that we all know: that twenty million children in the United States need dental care, ten million children in the United States need x-rays, one million are hard of hearing, 200,000 have epilepsy, and the inference was, and the public were expected to believe, that by the passage of compulsory health insurance, all of these difficulties would be corrected.

Let us look just momentarily into this question of how adequate our health services are. First, let us talk about it from the standpoint of quantity and then from the standpoint of quality.

I think you will agree with me that in the United States we have the best physicians. We have the best dentists. We have the best trained nurses. We

have the best hospital service that the world has ever known in all the history of mankind and nobody can deny that statement. We will admit that perhaps there are insufficient numbers of physicians and dentists, especially in some areas. I am sure that you all know we now have approximately one physician to each 760 people. In ten years from now we will have one physician to each 700 people. Compare that with some of the panels in England where some of the physicians actually have as many as 4,000 names on their panel. With reference to distribution, I think you are all aware that there is some inequality. In the State of New York we do have a physician to each 500 people while in Mississippi we have a physician to each 1,500. Out in California we have 1,300 people to one dentist. In South Carolina we have only one dentist to each 5,000 people and there is that inequality of distribution. There is no question about that. But let us look just a little further and see what has happened in the United States under our present method of practicing of these health services.

Let us look first at days of work lost. In 1900, at the turn of the century, the average working man was losing 28 days a year because of illness. Today the average working man in the United States is losing 8 days a year because of illness. The life expectancy when this nation was founded was only 35 years. That was 160 years ago. Today it is 68 for men and 70 for women. At the turn of the century only 4 per cent of our people were 65 years or older. Today nearly 14 per cent of our people are 65 years or over. In these 160 years the life expectancy of our people increased 91.4 per cent.

It is interesting to project that into the future, let us say another 160 years, our great, great grandchildren may live to be 130 years old.

Of course, this has had the following reaction on our death rate: In 1900 our death rate was 17.8 per 1,000. Today it is 9 per thousand. In England it is 12 and in France it is 15.7. Only 12 years ago 7 million people of the United States each year were occupying hospital beds. Last year over 16 million people availed themselves of hospitalization in the United States.

Before leaving this subject of distribution of health services, I do want to say one more word about dental schools. I am particularly interested in this for my own State of Wyoming. We have in the Rocky Mountain area ten states, ten million people, and we do not have a dental school. It costs approximately $2,600 a year to any school to put a boy through medicine or dentistry, and I cannot expect the State of Nebraska or I cannot expect the State of Illinois to spend $2,000 a year on a boy from Wyoming, so my boys out there are just not able to take dentistry or to take medicine.

Throughout the United States we dentists are doing something about it. A new school has just been started in North Carolina, a school—and I think it is two years old—in Alabama, and one two years old in the State of Washington. So we are doing something about this question of boys getting into dental school, but it is still going to be some years before we can catch up with the demand.

However, that is not the situaiton with reference to the practice of medicine. Twenty thousand young men in the United States last year could not take medicine because they could not get into a school. I called Father McNally of Georgetown to try to get a boy from Wheatland, Wyo., into the school. He said, "Senator, I would like to help. We can only take 125 and we have 3,600 applications." That is not quite a fair statement because those boys had applied at more than one place, but that does give you the problem as it exists.

But here is something further: our population today is just exactly double what it was in 1905, 45 years ago, yet we graduated in 1905 512 more M.D.'s than we graduated in 1949. That is a rather startling situation, is it not? We had 81 more medical schools in 1905 than we have now. I happen to be one of those who are pleased that most of those medical schools passed out of the picture for they were to a great extent diploma mills. In 1905 2,477 more boys took medicine than in 1949, and the situation with reference to medical services in many areas is quite critical.

Before getting away entirely from the subject of this bill, I want to refer to it again very briefly [holding up the compulsory health insurance bill]. If that should become the law of the land then we would need to accept the fact that those of us in the professions would certainly soon become government workers. I think we would also need to accept the fact that for each 100 patients that would go on the records, we would need one additional government employee to keep the records, and that would mean another million employees in the Federal government.

Speaking of states or countries that have socialized medicine, I was very interested while in Sweden in their plan. I was over there last fall with Senator Ferguson and Senator Baldwin. Senator Ferguson became ill with a severe pain in the back and wanted the services of a physician on Saturday afternoon. I was well acquainted with Mr. Cummings, our Commercial Attaché at the Embassy. I phoned and asked him if he could get a physician for Senator Ferguson. He phoned back in forty-five minutes or so and said that it was Saturday afternoon and he was sorry he could not get a physician but the physician would send a nurse over who would make Senator Ferguson comfortable till Monday. I learned something else while I was in Sweden too, that a Swedish physician never is present at a delivery, at childbirth. He does see the mother during the pregnancy but never is he present during a delivery.

Talking of Sweden and other countries makes me think of a statement which I think was made by Patrick Henry to the effect, if I can remember it, that the only light he had to guide his feet was the lamp of experience. Fortunately now in this matter of socialized medicine we have some lamps to guide our feet.

You know, they have had socialized medicine in Russia since Lenin took over in the revolution, which was about thirty-three years ago. When they changed from the Czarist government with their bloody slaughter and took

control of the government, Lenin made this statement, "The keystone to the arch of the socialistic state is socialization of the health services." Germany, of course, under Hitler had socialized medicine and our latest example is England.

Last evening and yesterday I had the pleasure of being in the company of Mr. Swiss, an English dentist who is in this country, and he appeared on the same platform with me. He discussed their program in England in its entirety, which was most interesting. We got to talking about costs in England and then he asked me with reference to what we thought the plan would cost in this country. Well, it will surprise you when I tell you that our research and our analysis indicated that compulsory health insurance in the United States might cost as much as $12,000,000,000 a year. I say to you that your government cannot stand a cost of that kind at this time. The contribution of the employee, the contribution of the employer, and the contribution of the government, making a 6 per cent payroll deduction, would just about pay half the bill. The rest would be a contribution from the treasury of which everyone would of course need to pay their part through income taxes. I know a Mr. Rulon Williamson, who was a former actuary for the Social Security Board. He told me what he thought the cost would be and it was quoted verbatim in the *Christian Science Monitor*. Here is what he said, "There could be a high of 18 per cent payroll deduction, there could be a plausible medium of 12.5 per cent, and a low, not to be expected, of 7 per cent," but he goes on to say that unemployment compensation, old age and survivor's insurance, and other deductions could bring the deductions up to 36 per cent of payroll.

I think there would not be a person in the United States who would favor socialized medicine if they had any idea that anything like *36* per cent might be deducted from their payroll.

I do not know exactly what our national debt is today. Every time I see a figure it is larger. It is something like 264 billion. That is rather embarrassing to me because when I went down to Washington it was only 252 billion. I cannot be held accountable, however, for all of it, but it does make me think of the situation when I first went down to Washington. Friends, I will tell you very frankly for a while I wondered why I was there, wondered how I got there, but after thirty days I quit worrying about myself and started to worry a little bit about how some of the rest of them got there when bills like this compulsory health insurance were presented to us.

To give you an idea of what our national debt is, let me just make this comment: if you will add $7,000 to any other indebtedness that you may have, then you will know your total individual indebtedness.

This program of socialized medicine, unfortunately, is easy, it seems, to sell to the public. Oh, they can tell such a fine story about it, and they do, until many papers throughout the United States are supporting it, especially the labor union papers. But here is a way, I think, that we can possibly at least check the enthusiasm for this socialized medicine: there are approxi-

mately 190,000 physicians in the United States. There are 80,000 dentists and something like 480,000 nurses. Now if each and every one of us every time we contact a patient, every time a patient comes into our office, would say to him that he should carry voluntary health insurance, and I know it is inadequate, I know it is costly for the coverage, we might defeat this program for compulsory insurance especially among the low income groups.

There are now 61,000,000 people covered by voluntary plans of some nature and your government is affording medical services of some type at the present time to about 24 million people in the United States. Then you all know the miners, you all know the railroads, you all know the great industrial plants have their programs and I think that if we can stall this compulsory health insurance off long enough there may not be the demand for it a little later.

There was one thing that was quite interesting down in Washington when this bill was being written. The President of the American Medical Association was called in and this was discussed with him. He was advised that before legislation would be presented he would be called in again. Such was not the case. The President of the American Dental Association was not consulted at all.

The point I want to make is this, that if we write labor legislation in Washington we invite the labor leaders down to confer, discuss it. If we write legislation with reference to the farmers, the farm organizations are invited in. Their suggestions are written into the law, but with reference to health, in which you and I have the greatest interest and in which we are charged with maintaining of the health of the people of the United States, this bill was written by laymen and was introduced without any further consultation with the health services. I think this is rather ironic: under this bill as it is written the physicians and we dentists, of course, would have to pay for our own health insurance. It is also rather interesting to note that those of our fine people who are Christian Scientists, whether they want to take advantage of our services or not, would be forced to pay their part of the cost of administering the act.

I am not going to deal any further with the administration of this particular act except to say this, that on every level, the top level in Washington, the state level, and the local level, the administration of that bill would not be by either physicians or dentists. It would be by laymen, those eligible for service, and the result would be that in the communities we would have the relief organizations running the health services of the country.

To my way of thinking the most compelling reason we should never have socialized medicine in the United States is simply that socialized medicine, compulsory health service, and good health services are incompatible. They will never to my way of thinking be compatible. I believe it would utterly destroy the faith and the confidence and the trust that a patient has in his physician. We physicians and dentists are only human, and to think that we would do our best work in working under conditions which we resent is just not straight thinking; we simply would not do our best.

I did not want to be wrong in this matter and I wondered if my professional background perhaps was not influencing my position. So with that thought in mind I went to England. I spent four days in England and I spent all of those four days investigating the functioning and working of the health services under compulsory health insurance in England. I found dental work deteriorating. I stood by the chair and watched dentists work. They were working, of course, on a piecework basis. Regardless of the time that they would spend on each operation they would get the same fee for it, and with their offices crowded they plainly admitted to me, "We are doing only what they call utility dentistry." Of course they do no gold work. They do no porcelain work. They do no casting, orthodontics, things of that kind, simply because the treasury of England could not afford to pay for those things.

I found while I was in England that their socialized government was costing 42 per cent of the gross national income. We over here in the United States are paying taxes and paying a lot, but we are only paying 24 per cent of our gross national income for the administration of our government.

As I would talk to people in the stores, in the hotels, taxicabs, and what not, I would get this response: the professions, dentistry and medicine, are losing interest in their patients. Then almost immediately they would give me this thought, "and the people of England are losing confidence in the dentists and physicians."

Mr. Buchanan, who is Secretary of the British Dental Society, asked me to bring this word of encouragement to you, that of the 12,000 dentists who originally were in the plan in England, now something over 1,000 have withdrawn from the plan and those 1,000 are doing very well. He also asked me to say to you that it was the hope of the English dentists that we in the United States would not fall into the same trap in which they find themselves.

So, Ladies and Genlemen, what are we going to do about it? Well, I think we have a responsibility. I don't think it is anybody else's responsibility, anybody else's business but ours. You may not know but the first compulsory health bill was written in 1935, but because so many new economic theories had been given to the people in so short a period of time, it was deemed best to wait before introducing compulsory health legislation.

By the way, the other night in Baltimore, Dr. Ben Robinson, who is Dean of the College there, told me he was one of the dentists who was consulted at that time in 1935 with reference to this bill, and which the physicians and dentists turned down absolutely, but the bill was introduced in 1939. One has been introduced in every session of the Congress since that time, and looking through the committee hearings I found better than 5,000 pages of testimony that had been taken with reference to compulsory health insurance.

I think you will be happy to hear this statement: today in the Senate of the United States compulsory health insurance could not gather fifteen votes. In fact, I doubt if it could get ten votes, and I am happy to say to you that of the men who introduced S.1679, two of them still in the Senate tell me they no longer would support it, while Mr. Wagner is no longer there, Mr. McGrath is no longer there and Mr. Pepper will not be there very long.

Ladies and Gentlemen, my observations on the Hill and from my mail and from editorials in the newspapers make it necessary for me to make this statement to you, that I am afraid and I fear that we cannot keep the two professions entirely uncontrolled, unregimented, allowed to proceed and practice the health services as we have in the past by simply taking a stand pat position and saying, "No, no, no, no."

Let me make this suggestion to you. I hope you will find time to get hold of a February copy of *Nation's Business*. I hope you can find time to get the January 27 issue of *United States News*. Then I want you to be sure and get the March copy of *Fortune*. Those are three ultraconservative business magazines. The *Fortune* article was the lead article for March and here is what it says, "Health Insurance is next." That was written by a very able reporter, Mr. Davenport. Ladies and Gentlemen, the three articles I have just mentioned to you arrive at the same conclusion that I have arrived at and that is that we the professions should come forward with some alternative voluntary prepaid health plan. I find many, many members in the Senate thinking along the same lines, and bills have been introduced and eventually will be reported from the committee with reference to voluntary plans.

There is one called the Hill Bill, by Senators Hill, O'Conor, and Withers, Democrats, and Aiken and Morse, Republicans; the Taft Bill by Mr. Taft, Mr. Smith, Mr. Donnell, all Republicans. There is the Flanders Bill by Mr. Flanders, Mr. Ives, and eight Republicans in the House. There is the bill which I have introduced.

Here is what I would like to see happen. I would like to see our officers of the A.D.A. and the officers of the A.M.A. sit down around a table and take the best features of each of those four bills, write them into a voluntary health insurance bill, give it to the committee, and say to the committee, "This is what the professions want," and I can assure you it would pass the Congress, and that would put an end, to my way of thinking, to this difficult problem that has been facing us for the last ten years.

In closing let me say this, that during my tour of duty in the Senate this will of course be the first order of business. My profession of dentistry was very good to me for sixteen years and I am going to devote my activities and my attention and my time and what capacity I have to seeing that there is never a compulsory health bill passed by the United States Senate. I do say this, and I hope I do not say it egotistically, that being the only man in the Senate with a professional background, the other gentlemen are kind enough to listen to me.

The maiden speech that I made in the Senate was twenty-five minutes long, just before we voted on Reorganization Plan No. 1. It was listened to.

President Ernst.—I am sure we all appreciate Senator Hunt giving us his talk on the legislative trends in the health services.

There certainly must be questions in the minds of some of you folks after hearing this talk. Senator Hunt has agreed to answer questions if they will be asked.

Member.—I would like to have the Senator elaborate on voluntary health insurance.

Senator Hunt.—I shall be glad to. I will just very briefly mention the important aspects of each of the various bills.

The Hill Bill, the gist of which is that the government buy voluntary non-profit health insurance for people who cannot afford it. There is a great difference between indigent people and medically indigent people, and this is supposed to help not just those on welfare, but to help those who are able to put a house, a home over the heads of their families and buy them food and clothing, yet who are not in a position to buy the best medical and dental care.

The Taft Bill provides for a government fund to extend medical care to indigent and medically indigent people.

The Flanders Bill is a voluntary prepayment plan and the charges for premiums are scaled according to the subscriber's income proportionate to his ability to pay.

Then there is the bill I have introduced, the one I am, of course, most familiar with, which is based on the supposition or belief that the most important aspect of our lives individually and collectively is our health. I have always believed that the health services should have Cabinet status. I have always believed that we should have a Secretary of Health, and so I have in my bill set up a Department of Health with a physician to be the Secretary of Health, and of course an Under-Secretary. I have provided for five Assistant Secretaries to head up the various departments now under the Surgeon General. My bill follows very closely the Hoover recommendations except that I do not believe we should include the Veterans Administration and the Armed Forces, at least not at this time. So I have provided for a study of eighteen months to be made of that proposition with a report to the Congress. I have set up a National Insurance Board of five members, the Secretary of Health to be a member, the Surgeon General to be a member, one member representing either the Catholic, the Protestant, or the American Hospital Association, and one layman who should of course be skilled in insurance matters. I have provided that this voluntary health insurance coverage shall be a policy, the best policy that can be written for the least money, and made available to the low income groups having an income of less than $5,000, for I think any family with an income of $5,000 should buy their own insurance wherever they care to buy it. I have further made provision—by the way that would only eliminate 21 per cent of our people, for 79 per cent of our people have incomes of less than $5,000—that the first $5.00 charge of any medical service shall be a charge directly against the insured. Perhaps I have made a mistake there because that may intimidate too many people from buying this insurance, but you all know that in the ordinary health policies, about 40 per cent is for administration and for the insurance company profit. For Blue Cross and Blue Shield the cost of administration runs from 12 to 16 per cent, and if we can offer to the low

income groups a policy on an absolute cost basis and get them to buy it, I think that would go a long way toward answering the problem. I don't know whether I answered your question.

Same Member.—I think you have, and it is very good propaganda to try to sell our insurance to our clientele. It does seem like an easy way to develop a sound basis for the controversy with the National Health Insurance.

President Ernst.—Senator Hunt, you have been very kind to spend this long evening with us. We have enjoyed having you here immensely and you have given us something to think about.

We ought to give the Senator a rising vote of thanks.

A rising vote of thanks was given, and the session was adjourned at 10:00 P.M.

Member.—May I ask one question? You made the remark that it will be fine if medicine and dentistry get together and make a program. I believe that is the statement, right?

Senator Hunt.—Yes.

Same Member.—That will never happen. I have been around a little bit. I admire the medical profession. Individually they are swell men but collectively every time we deal with them what do we get? We get the bad end of the deal. You will never see the time that dentistry and medicine will sit down and do a job together.

Mr. Francis Garvey.—May I offer to the last speaker a little hope, perhaps, that the light is shining? Even in the vast field of medicine there has been formed within the last year an interassociation committee on health, principally I might say at Senator Hunt's suggestion. As a result six major health organizations, medicine, dentistry, the Hospital Association, the American Nursing Association, the American Public Health Association, and the American Public Welfare Association, sit down at least four times a year around the table to discuss this problem. In addition there are some talks (I think I may let the cat out of the bag in this assembly although I would not want it to get further) between organized medicine and dentistry and the organized health associations, again stimulated by Senator Hunt, looking toward the solution of the question. We are hopeful, before this millenium comes to pass whereby we will see S-1678 or something kindred jammed down our throats, that the other professions will see the light which has heretofore been obscured by the bushel basket and we will be able to present a constructive program which the Senator and his colleagues in the Senate and House may accept and pass on to the American people as a constructive program for solving the health problem by the professions' method.

President Ernst.—Thank you, Mr. Garvey!

Member.—I would like to have Senator Hunt amplify this statement a little further: "We must sell voluntary health insurance." He does not state

whether it is to be governmentally administered, state or government administered voluntary insurance, or whether it is to be by private enterprise. If it is to be administered by the government, what is to keep politics out of it?

Senator Hunt.—I think you were speaking of the first reference I made, where I said if the 190,000 physicians and the 80,000 dentists would attempt to sell voluntary health insurance to each of their patients, is that what you are talking about? I meant the Blue Cross and Blue Shield.

Same Member.—That is by private enterprise?

Senator Hunt.—Yes, oh, yes, absolutely!

Same Member.—I am glad you made yourself clear.

Senator Hunt.—That does not refer, however, to the later remarks I made.

Same Member.—That does not refer to the Taft Bill or the Hill Bill. or any of the Republican bills?

Senator Hunt.—Nor the Flanders Bill nor my bill.

Same Member.—What is to keep politics out of the administration of those bills?

Senator Hunt.—I have in my bill provided that the Secretary of Health shall never have held any position in any political organization. Now I don't know how you can go any farther to keep it out of politics.

Same Member.—I don't think that is sufficient. As long as it is administered by government, any form of health insurance, voluntary or involuntary, is political medicine. There is another thing, Senator Hunt. I want to ask you another question.

Senator Hunt.—Let me say I entirely disagree with you. We have today—and this may surprise you—better than 40,000 people in the United States employed by the government in health services. We have in every state capital a Public Health Service, primarily supported with Federal funds, in my state about two to one, and I suspect in yours it is about two to one, and those programs are definitely set up in Washington. All of your public health programs administered through your state organization have their origin in Washington, and I say to you there is no politics in them.

Same Member.—Do you know the cost of those as compared to private medicine? Give us the figures on those.

Senator Hunt.—I have no idea about the appropriations. I don't think you are contending, Doctor, they are not good programs?

Same Member.—We do not need Federal health services but we do not want regimentation or a socialization with private health service.

Senator Hunt.—I disagree with you on that 1,000 per cent.

Same Member.—You may. Will you answer another question? You say that your bill follows very closely the Hoover Bill.

Senator Hunt.—Would you state your question a little louder?

Same Member.—The Senator says the bill that he proposed follows very closely the Hoover report. How many of you have read the Hoover report, and if you have, how many can tell me that Mr. Hoover recommends the administration of civilian medical and dental services by the government? I have read it and studied it and I cannot find any place where he recommends the administration by government of civilian medical and dental services. He does recommend the administration and the reorganization of Federal health services, is that right?

Senator Hunt.—The report recommends the creation of what he calls the United Health Services. He recommends that they report directly to the President. The Hoover report includes or attempts to include the medical services of the Army and the medical services of the Veterans Administration in this United Medical Health Service. I do not recommend that in my bill because I think it is unworkable. I did not say that my bill was identical with the Hoover recommendations. The Hoover recommendations you must remember were not unanimous by the Hoover committee. They were very much divided. First the Hoover report recommended exactly what my bill sets up. The first report recommended almost what is in S.1678, and then later on the task force was directed to change their report and bring in the United Health Services proposition, so that the Commission was very much divided on what they represented.

President Ernst.—Are there some further questions for the Senator?

Member.—I would like to mention something which you might say is out of order here but it seems to me that all this health insurance business is nothing more than the device through which to make it easier to pay medical and dental bills, or whatever bills are to be included. When are we going to start to preach to people the real meaning of health and the source of it?

President Ernst.—That is a little beside the point in this discussion, I think. Maybe you don't care to answer that?

Same Member.—You won't need all those hospitals you are talking about.

Senator Hunt.—I might say to the Doctor that the gentleman from New York this afternoon was outlining to me a plan that they have under way in New York with reference to orthodontics. According to this plan which is on a state level through the state health services, which again as I said a while ago is tied up with the Surgeon General's department of the Federal government, they are selecting certain cases of orthodontic need, where the boys or girls, if their condition is not corrected, will be handicapped for life. They are selecting these cases and they are going ahead and doing it on a local and state basis. Whether the state is using any Federal funds for that I don't know. All of those things are very, very good starts toward this problem that you speak of. I believe New York State deserves to be congratulated on making a start of it.

President Ernst.—I believe you will find there are quite a few states working along those lines, but they are not as far advanced as New York State. I

think in most cases they are using Federal funds distributed through the Federal agencies. That is the way the thing is done.

Are there any further questions?

Member.—I am not quite clear as to whether dentistry will be equal in status with medicine when the dental services are set up. I mean as an independent profession, or will dentistry still be under medicine, which would be wrong in my opinion.

Senator Hunt.—The question by the Doctor, is that under my bill, is that the question, the bill I have introduced, or any other? Under any of these health bills?

Same Member.—Yes.

Senator Hunt.—The question is: Would dentistry be considered still in a secondary position or would they have complete autonomy? Is that it?

Same Member.—Yes.

Senator Hunt.—I have provided, and the other bills have too, to just simply designate the word "dentistry." Let me say to you that I don't think there is any way you can write any bill that will cover all dentistry, at least for a great many years, excepting the most rudimentary, elementary dentistry, and since it would take so many billions of dollars to do all the dentistry that needs to be done in these United States, the orthodontics, the expensive types of bridgework, castings, porcelain restorations just never could be covered.

Same Member.—That is not quite the answer I wanted. I agree that the dentistry that would be provided would be for the indigent or near indigent, and it would not be the expensive type of dentistry. What I mean is this: Up to now dentistry has been a division of medicine. We saw in the Army and Navy throughout that the medical commanding officer told the dental commanding officer what to do. Should it not be better that the dental commanding officer have the say-so about dentistry and not be commanded by the medical officers?

Senator Hunt.—I think you are quite right. I went through that for twenty-one months in the Army attempting in a feeble way to change that situation. I introduced in the Senate, Doctor, S.2380, which gives to the Air Force Dental Corps and to the Army Dental Corps the same degree of autonomy that the Navy is now enjoying with the help of some of the men in the audience here, and we argued all afternoon around the conference table with Colonel Johnson who is the son of "Old Iron Pants" Johnson, if you remember who he was, and I am sure if the windows were not closed they would have heard us clear down on Pennsylvania Avenue. We finally got the bill through the Senate. It is still over in the House.

I agree with you 100 per cent. The sooner we are masters of our own destiny in dentistry the better the profession will be. There is no question about that.

Same Member.—Do you think we will get there? Is that included in these bills to accomplish that?

Senator Hunt.—It is not spelled out in those words.

Member.—For the clarification of this man, I would say we have no more staunch advocate for equality with medicine than Senator Hunt. He has been for the Dental Corps of the Army along with the Medical Corps, and he is our friend, I can assure you, right down the line. I was one of those men in that conference, and I know we owe a lot of thanks to this man for trying to elevate dentistry in the Armed Forces. He is doing a very good job.

President Ernst.—Thank you!

Senator Hunt.—May I mention a very small matter but not so small for some people? When we were writing up the Armed Forces Pay Bill, as always, we took the old bill and the new bill and laid them side by side and read the old bill and what changes are in the new bill. I happened to note that the $100 a month extra that the medical and dental officers are receiving in the Armed Services had been deleted in the new bill. I asked "why?" Well, they thought the war was over and we should go back to the old method now. It seemed to me there was a firm contract between the Government of the United States and the dental officers in the various Armed Services. I opposed the change. The full committee agreed with me and the bill stayed as it was; as a result every dental and medical officer is going to continue to get this $100 a month. That is a small thing but to an officer who goes into the Army and Navy and is going to be in there for thirty years it means $36,000.

That tempts me to say this, if I may: We ought to have some dentist in every state legislature in the United States and we ought to get every state legislature to memorialize Congress opposing compulsory health bills. Until we as members of the profession are willing to take time from our busy every-day work and spend a little time in government, we are always going to be, I am afraid, in an inferior position. So I would just like to suggest to some of you, if you can possibly spare the time, get into your own state legislature. If you don't you are going to have the same thing happen in many states that happened in Connecticut and Massachusetts in the last year.

President Ernst.—Thank you!

Mayor Kennelly talked to us along the same lines this morning.

Member.—In response to a letter which I wrote to Senator Douglas on compulsory health insurance, he indicated that he was against it. However, he said that he was very much for trying to work out a way to try to take care of what he termed catastrophic illness, in which I think he is quite right. I don't know whether Senator Hunt has thought along those lines, but to my mind it is quite a simple thing. It is simply paying money out of the fund and letting the individual pay back with interest, something of that kind.

Senator Hunt.—Paul was going to introduce that bill but I understand now that he has not introduced it and may not. But the gist of his bill was to have tax-financed medical care for persons with health expenses over the specified limit, if a person had already expended 5 per cent of his yearly income for

health services. The government would pay any amount that he would need to spend over that 5 per cent. That is Paul's idea in a broad way but he has not introduced the bill as yet.

Same Member.—Thank you.

President Ernst.—Are there further questions?

Member.—Are you optimistic about the future of the country or do you think we are headed for socialism, whether or not we desire it?

Senator Hunt.—I have said today to some friends with whom I had dinner that as I travel over the United States—and I have seen it here in a great way and I have seen it in the Southern States too—I see the members of the dental profession driving very fine cars, far more expensive cars than they used to drive when I was practicing dentistry. I find their ladies beautifully dressed, wearing very wonderful furs and the like. I know that our dental incomes today are up 80 per cent over what they were in '41, 60 per cent over our previous best year which was '29. I know your taxes are high. I know your cost of operation is high, but after you pay your taxes and after you pay your cost of operation you have more to take to the bank, more than we used to have.

Now you say, am I pessimistic or am I optimistic? I hate deficit financing. When I was elected governor there were just about a million dollars in general funds. When I left there were over ten million. We did not owe anything. That is the way I like to see government administered.

Doctor, if you are thinking of the Marshall Fund, those monies I think have kept France and England and Italy from becoming Communistic. Had they gone Communistic I don't know how long it would have been before Russia would have taken in after us, and what would a war cost? I think that has been good insurance. I believe you are thinking about these terrific expenditures, aren't you, Doctor?

With reference to the expenditures for the National debt, the interest, there is no way you can circumvent that. With reference to expenditures having to do with the Armed Services, I think we must remain strong. I am on that committee and I was glad to get on it because I am one of those who believes if we stay plenty strong we will not be attacked again, and we would not have had World War I. To my way of thinking if we had been prepared we would not have had World War II, and if we are prepared we won't have World War III. If you take out those four categories, Doctor, and that makes 76 per cent of our expenditures, the other 24 per cent for ordinary government expenditures have not increased percentagewise as much as have your taxes and your expenditures for state, for school, for county, for city. But I am heartily in sympathy with what you are thinking about. We cannot go on indefinitely with this deficit spending. Our National debt today is more per capita than the National debt of England. Just the day before yesterday we voted three billion dollars again for E.C.A. on the theory we have been successful with the Marshall Plan, and if we discontinue now we may lose the success that we have had. But you present a very, very difficult question, Doctor, to answer.

All I can say to you is I hope the country will have confidence in the Congress that they are doing the best they can under trying situations. I hate deficit financing just as much as any person in this room, and I voted against sending money to Korea. I thought it was a mistake. I still do. I think it is money wasted. We wasted, I feel, all the money sent to China and should have kept every penny home. But the other countries, there I think it has paid.

Now am I alarmed about the future of the United States? No, I am not, Doctor, for this reason: These countries I speak of that don't have the National debt that we have don't have the resources that we have. We have the natural resources in this country, that when the time comes we can cut down on armament spending, which takes 45 per cent of the national budget, when the time comes we can cut down on E.C.A. expenditures, and when the time comes we can cut down on some of our expenditures in the Veterans Administration, then I hope we will get back, may I say, to a normal, sensible time and start cutting these expenditures.

I know I have not answered your question but that is all I can give you on it, Doctor.

Same Member.—Would you care to elaborate on China?

Senator Hunt.—You remember Stillwell wrote us a long while ago when he was over there, saying something about it being a hopeless proposition. You will remember General Marshall after he was over there two years said we were wasting the money which we were sending to China and we should not send any more. I think you know China has something like 540 million people. I believe you know, as we know, that Communism in China as we know it today was started just about the end of World War I, and it was not inspired from Russia. It was an agrarian, a farmer Communistic movement. Naturally when it reached the place where it was the dominant force in China, then Russia started giving it some aid and helped it along. I believe that the bear, and I am speaking of Russia now, has the dragon by the tail and I think even now they wish they could let go because China is going to be the worst darn headache to Russia that they have ever had yet, and already there is some dissatisfaction in China because of the great amount of foodstuffs which China needs. It is so bad that ten million people, they say, are dying of starvation in China each month at the present time, but Russia continues to take everything they can out of China. So if I were going to comment on China I would say this, that Russia is going to be very, very sorry in a few years that they ever took hold of China.

Member.—Senator, I would like to ask you one question which I think is rather important and that is, "Do you feel that the American people are ready to accept the truth? Do you think we are really getting the truth of the over-all situation?" I point this out because I personally lived in a mission in Italy, Greece, and Turkey twenty months after the war. It alarms me to see that our men, whether they be spies or other things in industry, are left over in these

countries. Nothing is ever done about them. Most of the men of my age feel that we will ultimately be the goats to go back in again. We are not too anxious about it. Our real feeling is that the truth is not out. What do you think?

Senator Hunt.—I would answer you, Doctor, by saying this: As I said, I am a member of the Armed Services Committee. We go over to the Pentagon Building, not every month, but sometimes it will be twice a month and maybe we will miss a month. When we go over there we are taken into a closed room. It is an executive session and we are briefed on our military position as of today. We are briefed on where our planes are today, how quickly they can move to another point, great huge arrows on maps as big almost as this stage, indicating what can happen in the eventuality of an emergency, and I would say excepting those final details as to what might happen on what we might call "D" day, you as a civilian know everything that I know, and I think I am just about as close to what could be told the people as anybody. There may be a lot of things I don't know, of course, but I don't go along with this theory that there is anything of importance that is not told the people. If you mingle with those reporters in Washington for about thirty minutes, you realize their nose for news and realize how they get into everything that happens. We can have an executive session in the Senate and we will all swear not to say a word about it, but it will be downtown and on the ticker almost before we get out of the room. Doctor, I don't know of a thing that I know in Washington that the people don't know. I know there is a feeling, which you have broadcast throughout the country. I must say to you frankly excepting those military secrets of what we could do immediately in case of an emergency—and I will say this much to you and to all of you folks, don't think for a minute we are not ready to hop and we are ready to go, not just on the defensive but to go right on the offensive and go quickly too if something happens—you know as much about it as I do.

President Ernst.—It has been extremely interesting to listen to this discussion this evening. I am sure we all enjoyed the questions and the discussions of them that followed.

Erratum

In the article by Dr. Cheney entitled "Heredity, Growth, and Observation as Related to Extraction Procedures," which appeared on page 899 of the December issue of the JOURNAL, the illustration above the legend for Fig. 1 should be above the legend for Fig. 3, page 907, and the illustration above the legend for Fig. 3 should be above the legend for Fig. 1, page 902.

These illustrations were transposed on the press.

TIME TO BEGIN ORTHODONTIC TREATMENT

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INTRODUCTION

THE problem of determining the proper time to institute orthodontic treatment is one of the most perplexing problems that confront the orthodontist. This problem has been a subject of controversy since the movement of malposed teeth became a practical procedure. The history of orthodontics is marked by a lack of unanimity of opinion on this subject. This diversity of opinion continues to exist despite the vast strides taken by the profession during its brief existence.

The subject is an extremely complex one, with ramifications into all of the fields that are concerned in growth and development. Perhaps when more is learned about the many factors that influence growth and development, the profession will be better equipped to solve the problem of when to begin orthodontic treatment.

The purpose of this paper is to present a review of the literature on the subject, expressing the views and ideas of those who, through experience and/or scientific investigation, have contributed basic criteria by which we can determine the time to begin orthodontic treatment.

PRIMARY DENTITION

Bogue[1] was one of the early advocates of treatment of the primary dentition. His idea was to use the primary teeth as instruments to enlarge the primary arches and thereby draw into position the underlying permanent teeth. He wrote that the permanent teeth will very nearly follow the lines of the primary teeth, whether these latter be regular or irregular. Therefore, it is important to see to it that the primary teeth become spaced during the first six years of life so that the permanent teeth shall have room to erupt without crowding. He advocated mechanical stimulation to expand the primary arches and obtain the interdental spacing.

The histologic investigations of Breitner[2] conducted on monkeys that had been subjected to experimental orthodontic treatment lend support, in part, to the practice of treating the primary dentition. These investigations prove conclusively that a developing tooth bud will move in the same direction as the apex of the root of the primary tooth which it will succeed. Appliances which produce tipping rather than bodily movement must be avoided. Tipping will move the primary root and consequently the permanent germ in the opposite direction of the movement of the crown.

This paper was presented in partial fulfillment of the requirements for a certificate of Competence in the postgraduate course in Orthodontics at the University of Tennessee, College of Dentistry, March, 1950.

Strang[3] contends that the growth of some children is spasmodic. Such children are likely to approach the period of eruption of the permanent incisors with no interdental spacing. Then while the permanent incisors are erupting a rapid period of lateral growth will take place and these teeth will gradually assume excellent positions. Therefore, expansion of primary arches is contraindicated. However, there are those chidren who exhibit a marked hypertonicity of the facial muscles producing abnormal pressures on the primary arches and actively counteracting lateral growth forces. This condition, combined with a history of steady rather than spasmodic bone growth, indicates the need for mechanical stimulation and muscular training during the primary dentition treatment of Class II and Class III arch relationships, the object of such treatment being to make possible the correct intercuspal locking of the permanent first molars when they erupt.

According to Salzmann,[4] treatment in the primary dentition is not indicated for malposition of single teeth unless these interfere with function or development. Groups of teeth in malposition and malrelated jaws should be treated in the primary dentition. Also conditions which prevent the continued development of normal occlusion and obviously will not correct themselves should be treated. Treatment in the primary dentition should be limited to removal of the agent responsible for development of the malocclusion. This is usually sufficient to bring about self-correction.

As a result of long-range observation of a large number of preschool children, Lewis[5] makes the following statement in regard to the so-called developmental spacing in the primary dentition: "... we have found no evidence to support the view that if developmental spaces do not occur at five years, the dental arches should be widened to receive the incoming permanent incisors."

In this same serial study, he observed that spontaneous correction of Class II, Division 1 cases never occurred. The problem which they present is determination of the proper time to begin orthodontic treatment. If corrected at the age of 3 or 4, retention is difficult; but if neglected, proper mastication will be interfered with and the face may become deformed to such an extent that no later treatment will entirely correct the condition.

Lewis is free to admit that he is puzzled by Class II, Division 2 cases, and that the proper time to treat them has not satisfactorily been determined.

He says that all Class III cases constitute a reversal of normal development, so they should be treated in the primary dentition. This correction will often carry over into the permanent dentition.

Concerning treatment of the primary dentition, Delabarre[6] contends that it is in harmony with nature's plan to apply stimulation for added arch width early enough to permit the permanent teeth to erupt in their correct positions. Cross-bite, Class II, and Class III cases yield rapidly to simple, gentle force in the primary dentition. These should be treated. Delabarre does not contemplate nor advise continuous treatment from the primary to the permanent stages. He admits that this does not alleviate the possible necessity for further treatment occasioned by appearance of maldevelopment during the mixed dentition stage.

Eby[7] believes that treatment of the primary dentition is indicated only in conditions involving function. Among these he lists extreme constrictions, extreme posterior occlusion, practically all mesioclusions, and cross-bites.

The importance of considering developmental age rather than chronological age in determining the time to begin treatment is stressed by Baker.[8] In the primary dental arches, he believes treatment should be instituted where there is a marked abnormal arch form, an abnormal anteroposterior relationship, cross-bite, or open-bite.

McCauley[9] says that the orthodontist's principal objective is preventive treatment; therefore, his first obligation is to the primary dentition. If we subscribe to the premise that function enhances growth, then we must favor treatment of malocclusion in the primary dentition.

MIXED DENTITION

Baker[8] strongly advocates treatment in the mixed dentition. He considers this period the most advantageous time for corrective orthodontic treatment. His approach is as follows: If the permanent incisors erupt in torsiversion, they should be placed in normal positions immediately. Arch development, if needed, should be obtained at this time also. Anteroposterior relationship of the posterior teeth should then be corrected if necessary. Immediate treatment is indicated for cross-bites. It is important to see that corresponding maxillary and mandibular primary molars are exfoliated or extracted from the arches at approximately the same time. When additional arch width is required soon after the eruption of the first premolar, it is advisable to proceed immediately, for experience has proved that in cases of this kind the second premolars also receive favorable influence. In the case of premolars erupting in malocclusion, treatment is indicated before there is occlusal contact of these teeth and before the complete development of their roots. Baker concludes his recommendations by suggesting that adequate measures should be taken to provide sufficient room in the arches for the eruption of the permanent canines.

The following conditions are listed by Salzmann[10] as indications for treatment in the mixed dentition:

1. Malrelation of the dental arches.
2. Extreme malocclusion and malrelation of permanent first molars keeping in mind that normal growth change will usually move the mandibular permanent first molars mesially.
3. Definite malocclusion of individual teeth after they have come into occlusion.
4. Elimination of supernumerary teeth.
5. Opening of space to allow erupting permanent teeth to come into occlusion.
6. Correction of labioversion of maxillary incisors.
7. Elimination of dentofacial habits.
8. Approximation of abnormally spaced incisors, after the lateral incisors are in position and the canines show no sign of closing the spaces.

He points out that mixed dentition treatment should not interfere with development and that appliances should not be kept in the mouth for long periods of time lest they inhibit the inherent growth forces.

A condition which frequently causes concern during the mixed dentition stage is the presence of a wide diastema between the maxillary central incisors. This is usually attributed to an abnormal labial frenum, and orthodontic treatment and/or surgical removal of the frenum is resorted to immediately. Dewel,[11] in an exhaustive study of the normal and abnormal labial frenum, condemns this practice. In this paper it will suffice to say that he points out that under no circumstances should orthodontic or surgical procedures be instituted until the normal forces of eruption of the permanent lateral incisors and canines have had ample opportunity to close the diastema. In other words, this condition should not be treated in the mixed dentition.

In the mixed denture, according to Lewis,[12] changes are taking place so rapidly that the assumed ideal of normal occlusion is obscured, and the resulting condition may be classified as abnormal. Therefore, the issue is sometimes befogged and normal developmental variations in the mixed dentition are treated as maloclusions. When apparent abnormalities are noted in the mixed dentition, the patient should be placed under observation over a period of time. If it is then observed that normal adjustment is not taking place, or the condition is becoming worse, then treatment should be instituted and not before. Also most of the so-called frenum cases are but phases in normal development. Treatment should not be instituted in these cases unless the space fails to close after the eruption of the permanent canines.

Strang[3] feels that, with the exception of cases that exhibit faulty relationship of arches to each other or to cranial anatomy, mixed dentition treatment should be avoided. During this period muscular exercises and training should be given and an attempt should be made to eliminate all etiologic factors. This will afford nature an optimum chance at correction.

In the mixed dentition Nance[13] favors treating only cross-bites (anterior or posterior), extreme Class II maloclusions, and Class III maloclusions. One exception he cites is the extraction of the primary canines to relieve crowding of the permanent incisors in *some* cases. This procedure may be followed in those cases in which careful measurements reveal that the combined mesiodistal width of the primary canines and molars is in excess of the width of their permanent successors by at least 1.7 mm. on each side. A preventive lingual arch wire with spurs contacting the distal surfaces of the permanent lateral incisors should then be placed. This will maintain the existing relationship between the permanent first molars and permanent incisors. This appliance should be removed when the permanent premolars make their appearance.

Concerning treatment of the mixed dentition Dinham[14] states, ". . . to the best of my knowledge no one has showed proof that a high percentage of cases treated in the mixed dentition stage have been so successful as to require little or no treatment of the permanent denture. Yet we can all show a large number of cases so treated which are unsatisfactory and which do require extensive

retreatment. Until someone presents a significant series of cases treated in the mixed dentition stage in which results were so satisfactory as to justify treatment at this age, the inference must be that, although some improvement in gross abnormalities is possible, as in Class I cases with Class III tooth relationships, much more proof is necessary before treatment in many mixed dentitions can be considered good procedure.''

Kloehn[15] attributes the many failures in treatment of Class II, Division 1 malocclusions in the mixed dentition to a lack of adequate anchorage. He suggests that the position of the mandibular teeth be accepted as correct for that individual and that the maxillary teeth be moved distally into correct relationship with their antagonists by the use of occipital anchorage, thereby avoiding any possibility of disturbing the mandibular teeth. This method of managing these cases moves the maxillary teeth distally while the face and mandible are growing in their normal downward and forward path. This Kloehn[15] called ''guiding growth of the alveolar process and eruption of the teeth.'' This treatment should be instituted soon after the permanent first molars have fully erupted because of the declining rate of growth of the jaws and alveolar processes.

PERMANENT DENTITION

According to Eby,[7] the period immediately following the loss of all primary teeth and the eruption of the permanent teeth is the period in which orthodontic treatment can be accomplished with best results. At this time the full volume of tooth substance is present and growth activity is proceeding rapidly; therefore, mechanical stimulation is well received. Prior to this period only local conditions, such as cross-bite, should be treated. General conditions can be treated more quickly and successfully when all permanent teeth except the third molars are in place.

Case[16] believed that most orthodontic patients, however, dentally or facially deformed, could be treated more successfully and with less difficulty after the eruption of the second permanent molars.

Johnson[17] contends that the difficulty in the question of when to begin treatment is not one of treatment but one of diagnosis. When a condition is recognized as one which interferes with development it should be corrected. The problem is to differentiate between such conditions and normal developmental stages. Not all malpositions of the teeth get progressively worse, nor do they all represent a perversion of developmental processes. To determine the optimum time to begin treatment is to determine the relative significance of the malpositions.

Hellman[18] advocated beginning orthodontic treatment at a stabilized age, i.e., after the second permanent molars have erupted. He contended that early treatment results in long treatment with ultimate damage to the teeth and supporting structures.

Taylor[19] believes that most treatment initiated before the permanent second molars are in occlusion offers the alternatives of either a much too long period of treatment, or a period of retreatment. Either alternative is unwise when a

single short period of treatment in the permanent dentition would suffice. He does not question the advisability of treating early all cases which exhibit a tendency to grow more complicated as time passes. Care must be taken, however, to distinguish between developmental variations and true malocclusions.

According to White,[20] the best time to start orthodontic treatment must be selected by analyzing the individual case. It is often necessary to observe a child's growth tendencies for several years before planning treatment. If removable causative factors are directing teeth into unfavorable positions, they should be corrected as soon as recognized. If inherent growth patterns are directing teeth into malpositions, there is little hope of attaining final correction before the permanent second molars have fully erupted. In another paper White[21] says, "The age factor in treatment planning is not a seriously disturbing problem when a patient is presented for his first orthodontic contact in the early teen age. By this time the second molars have erupted; the individual growth pattern is well established; the dentofacial deformity has nearly reached its most extreme proportion; there are sufficient teeth erupted to receive nearly any type of appliance and the patient has seldom attained any position in business or society which makes the wearing of any type of appliance intolerable."

There is considerable scientific evidence to support those who believe that most malocclusions should not be treated until all permanent teeth, except the third molars, have erupted. This evidence is as follows:

Brodie[22] has concluded from his cephalometric appraisal of orthodontic results that an undesirable basic facial pattern cannot be corrected by orthodontic means to an harmonious one, since that craniofacial pattern is established at birth and changes but little thereafter.

Thompson[23] proved that the rest position of the mandible is stable and unalterable. Also, that a "free-way space" of at least 3 mm. must be maintained between the occlusal surfaces of opposing teeth when the mandible is in rest position.

Nance[24] has shown that only a very limited amount of expansion can be obtained and maintained in the dental arches. He also proved that the permanent molars cannot be moved distally and maintained unless they have tipped forward from their normal positions.

In conclusion, to quote Salzmann,[25] "Orthodontic therapy . . . should be undertaken as soon as it is recognized that a condition exists which interferes with normal growth, development, function, or relationship of the teeth and dental arches and there is little possibility of correction by further growth or developmental processes alone. . . . It should be remembered that there is generally greater danger in 'too much, too soon' rather than in 'too little, too late.'"

SUMMARY

Some authors believe that when anterior spacing fails to occur in the primary arches, mechanical stimulation should be applied to expand them and allow room for the eruption of the permanent incisor teeth without crowding.

Others condemn this practice on the basis that lateral growth concurrent with the eruption of the permanent incisors will accommodate them in excellent positions.

Most authors agree that treatment in the primary dentition should be limited to those conditions which prevent the continued development of normal occlusion and obviously will not correct themselves. Among those conditions which indicate treatment during this stage are extreme distoclusions, almost all mesioclusions, and posterior and anterior cross-bites.

Concerning treatment in the mixed dentition, opinion varies greatly. Some consider this the most advantageous time for treatment; others feel that there are almost no indications for treatment during this stage.

The general concensus of opinion seems to indicate that only mesioclusions, extreme distoclusions, and cross-bites (anterior or posterior) should be treated during this stage. In some cases, the primary canines may be extracted to relieve crowding of the permanent incisors. Following this procedure, a preventive lingual arch wire should be placed.

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REFERENCES

1. Bogue, E. A.: Orthodontia of the Deciduous Teeth, D. Digest **19**: 79-88, 1913.
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3. Strang, R. H. W.: A Text-book of Orthodontia, ed. 2, Philadelphia, c 1943, Lea & Febiger, pp. 319-322.
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14. Dinham, G. A.: Treatment Aims and Limitations, AM. J. ORTHODONTICS **34**: 171-177, 1948.
15. Kloehn, S. J.: Guiding Alveolar Growth and Eruption of Teeth to Produce a More Balanced Denture and Face, Angle Orthodontist **17**: 10-34, 1947.

16. Case, C. S.: The Early Regulation of Children's Teeth, J. Am. Dent. A. **11**: 109-111, 1924.
17. Johnson, A. L.: Early Orthodontic Treatment, Dental Cosmos **66**: 779-784, 1924.
18. Hellman, Milo: The Optimum Time for Orthodontic Treatment, J. Am. Dent. A. **29**: 622-639, 1942.
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20. White, W. W.: The Timing of Orthodontic Treatment, Kansas State Dent. A. J. **32**: 29-32, 1948.
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24. Nance, H. N.: The Limitations of Orthodontic Treatment. II. Diagnosis and Treatment in the Permanent Dentition, AM. J. ORTHODONTICS AND ORAL SURG. **33**: 253-301, 1947.
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Others condemn this practice on the basis that lateral growth concurrent with the eruption of the permanent incisors will accommodate them in excellent positions.

Most authors agree that treatment in the primary dentition should be limited to those conditions which prevent the continued development of normal occlusion and obviously will not correct themselves. Among those conditions which indicate treatment during this stage are extreme distoclusions, almost all mesioclusions, and posterior and anterior cross-bites.

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THE NATURE OF FACIAL PROGNATHISM AND ITS RELATION TO NORMAL OCCLUSION OF THE TEETH

ARNE BJÖRK, D.ODONT., VÄSTERÅS, SWEDEN

THE occurrence of malocclusion depends not merely upon changes of a local nature which are confined to the dental arches or to the dental part of the jaws. It is evident that malocclusions may be regarded to a considerable extent as symptoms of more generally active factors which determine the formation of the facial skeleton and the skull as a whole.

Of the various methods that have been employed for studying the relation between the bite and the facial build, the use of x-ray cephalometry offers exceptionally valuable advantages, because of the possibility it gives of obtaining some idea of the internal structure of the skull. The various investigations carried out within this field have also served materially to alter our views on the subject of facial morphology, proportional growth changes, and function of the jaws. With the increased knowledge gathered in this field, x-ray cephalometry will also become a valuable aid to diagnosis in the science of orthodontics. I shall also touch briefly upon some aspects of x-ray diagnosis of sagittal malocclusion, based on methods and results from investigations into the relation between prognathism and occlusion of the teeth.

Lateral x-ray exposures of the head were taken in the course of an examination covering 603 Swedes, of whom 281 were male adults and 322 were 12-year-old boys. A statistical analysis of this material was published in 1947. The same x-ray method was also employed by the author in an examination of 400 Bantus, carried out in Southern Rhodesia in 1948.

In addition, x-ray exposures of crania were taken, representing different races and also anthropoids. On the basis of the material gathered in this manner I shall now give a brief description of the normal variations in the facial build and those facial measurements which have been found especially useful for the purpose of diagnosing the malocclusion of the teeth by means of x-ray photography.

Prognathism is the characteristic which determines the general shape of the facial profile. By prognathism is meant the prominence of the facial skeleton in relation to the brain case according to the anthropologic definition. Prognathism is therefore a biologic conception which is not governed by any specific method of measurement. In craniometry the degree of prognathism is usually determined by the angle formed between the Frankfort plane and a profile line from the root of the nose, nasion, to the alveolar process in the maxilla, prosthion.

Presented at the Annual Meeting of the Northeastern Society of Orthodontists, Boston, Mass., March 6 and 7, 1950.

The prognathism may also be expressed by an index which gives the distance from prosthion to foramen magnum, basion, in per cent of the cranial base length from nasion to basion. In orthodontics the Simon's method is better known. According to this method the prognathism is determined by the degree of protrusion of the jaws in relation to a vertical facial plane drawn from the infraorbital margin, perpendicular to the Frankfort plane. The degree of prognathism has also been measured from the cranial base, both on skulls sectioned along the midline and on x-ray films.

As the roentgenogram provides a direct measurement of the shape and size of the cranial base, it is preferable to measure the prognathism from the cranial base rather than from the Frankfort plane. The configuration of the cranial base is highly significant in regard to the degree of prognathism, and it seems natural therefore to measure the degree of prognathism from the cranial base. Using the Frankfort plane as a datum does not give the same pronounced relationship between the configuration of the cranial base and the prognathism.

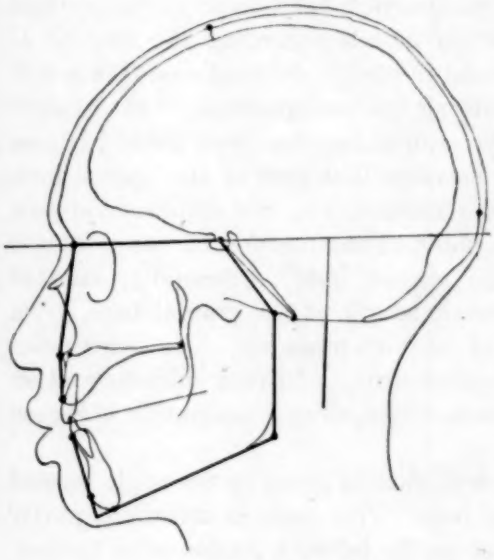

Fig. 1.

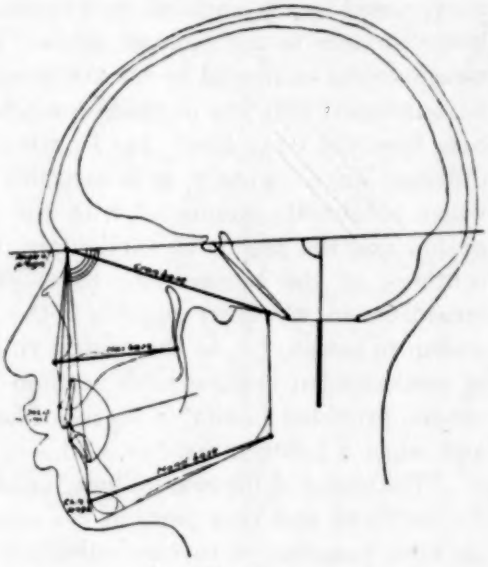

Fig. 2.

Fig. 1.—Facial diagram for measuring variations in the facial structure and the cranial base from a lateral x-ray exposure. (From Björk, 1950.)

Fig. 2.—Diagram indicating the method of measuring the angles of prognathism and the inclination of the incisors from a lateral x-ray exposure. (From Björk, 1950.)

In the studies referred to here the prognathism has been determined by measuring the angles from a cranial base line through nasion and the center of sella turcica to facial profile lines (Figs. 1 and 2).

A distinction has to be made between facial and alveolar prognathism. The term facial prognathism refers to the protrusion of the facial structure as a whole, while alveolar prognathism indicates a prominence of the alveolar arches beyond the jaw bases. These two types of prognathism, facial and alveolar, are

not always concurrent. In order to determine the prominence of the different parts of the facial profile the prognathism has been measured to four points on the bone profile:

1. Maxillary basal prognathism: The angle formed by the cranial base and a profile line through nasion and the nasal spine.
2. Maxillary alveolar prognathism: The angle formed by the cranial base and a profile line through nasion and prosthion (upper alveolar margin).
3. Mandibular alveolar prognathism: The angle formed by the cranial base and a profile line through nasion and infradentale (lower alveolar margin).
4. Mandibular basal prognathism: The angle formed by the cranial base and a profile line through nasion and pogonion (the most prominent point on the chin).

In this way it is possible to distinguish between the prognathism of the two jaw bases and the two alveolar arches, which, as will be demonstrated later, is of great importance in orthodontic diagnosis. The inclination of the incisors is expressed by the angle formed between the longitudinal axes of the upper and lower incisors to the occlusal plane. Further details regarding the method of measurement employed by me are to be found in earlier publications. Here will be mentioned only the methods for determining the configuration of the cranial base from the x-ray film. The length of the cranial base has been defined in two different ways. Firstly, it is desirable to measure that part of the cranial base which is directly connected with the jaw structure, i.e., the distance between nasion and the jaw joint (articulare, the point of intersection of the posterior contours of the ramus with those of the cranial base). Secondly, another measurement which we require is the over-all length of the cranial base, from nasion to basion, i.e., to the frontal ridge of foramen magnum. The latter point of measurement is discernible both on roentgenograms of living subjects and on crania, provided a suitable degree of hardness of the x-ray illumination is chosen and when a Lysholm grid is used.

The shape of the cranial base, i.e., its deflection, is given by the angle formed by the front and rear parts of the cranial base. This angle is measured partly between nasion-cella turcica-articulare and partly between nasion-sella turcica-basion. Having given this short orientation of the roentgenometric method employed, the normal variation in prognathism and its relation to the variation in sagittal occlusion of the teeth will be discussed.

Alveolar Prognathism.—Alveolar prognathism indicates a condition in which the alveolar arches protrude beyond the jaw bases or the basal bone of the jaw structure. In the phylogenetic development in primates the prognathism diminishes due to a shortening of the jaws. This reduction in jaw length affects the alveolar portions of the jaw more than the basal arches and results in a straightening of the facial profile, from the root of the nose to the chin. The profile becomes progressively straighter and the incisors of both jaws also become more upright (Fig. 3). Owing to this phylogenetic reduction in alveolar prognathism the nasal part of the face and the chin assumes a more prominent aspect.

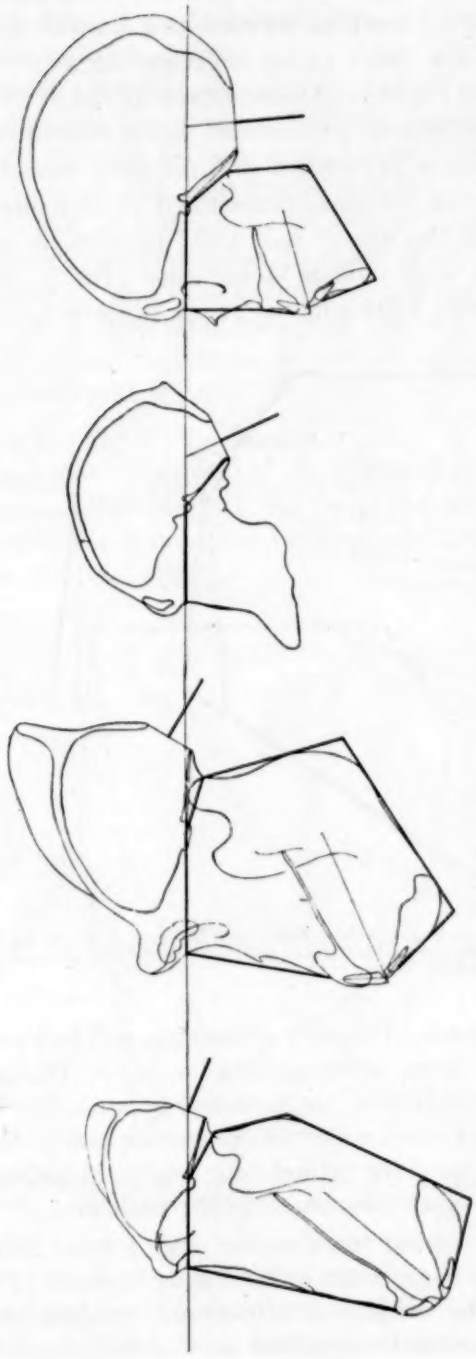

Fig. 3.—Composite x-ray diagram, illustrating the phylogenetic difference in prognathism in (*a*) baboon (*Papio porcarius*), (*b*) gorilla (gorilla gorilla), (*c*) fossil ape-man (plesianthropus), and (*d*) recent homo (Bantu). (From Björk, 1950.)

The degree of alveolar prognathism also varies widely with different racial groups, e.g., it is extremely pronounced in West African Negroes, and less marked in Europeans. The racial difference in alveolar prognathism may here be illustrated, as it manifests itself in Swedes and Bantus, by comparing facial diagrams constructed from mean values representing adult males belonging to these two racial groups (Fig. 4). A comparison of the diagrams will show that the alveolar prognathism is more pronounced in the Bantus, which has the effect of making the incisors more protrudent and the chin more recessive.

The inclination of the incisors, determined by the angle formed between the longitudinal axis of the upper and lower incisors, is on an average 137° in Swedish adult males, with a range of variation of 70°. In Bantus the mean value of this angle is only 120° and the range of variation, 55°.

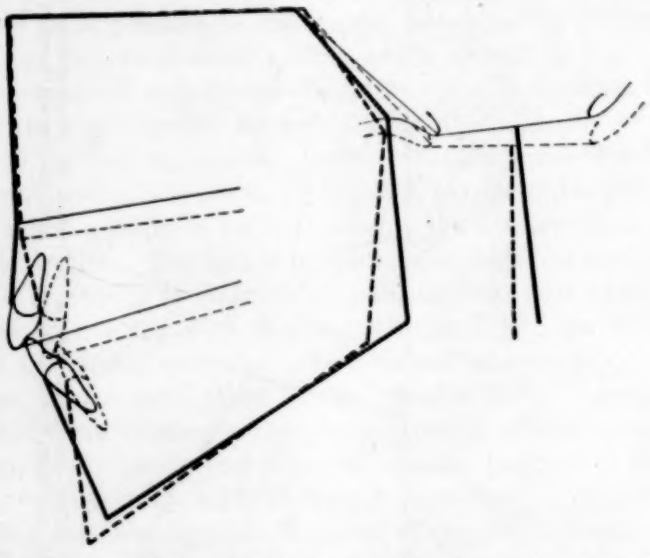

Fig. 4.—Diagram showing the mean difference in facial build and prognathism between adult male Bantus (full lines) and adult male Swedes (broken lines), illustrating the difference in alveolar prognathism. (From Björk, 1950.)

The normal variation in alveolar prognathism and inclination of the incisors is considerable in both races, although smaller in the Bantus. Alveolar prognathism or bimaxillary protrusion accompanied by a marked forward inclination of the incisors is in many cases a normal occurrence also in Europeans, and does not in itself imply any need for orthodontic treatment unless it is accompanied by irregularities in the tooth position or in the occlusion.

During the growth period the alveolar prognathism diminishes, the profile becomes straighter, and the incisors become more upright (Fig. 8). The difference in inclination of the incisors of 12-year-old Swedish boys and male adults was 9° as measured from the longitudinal axes of the maxillary incisors to those of the mandibular incisors. The same tendency of the incisors to become upright during growth is found in the Bantu material. This change may vary from individual to individual.

Our calculations will show that crowding is a distinct symptom of a general reduction in facial prognathism, due to a shortening of the jaws, and hence not merely a shortening of the alveolar arches. Crowding does not on an average appear to be connected with a marked tilting forward of the incisors, even though it may occur in some individual cases.

In certain cases of crowding, tooth extraction is warrented as a necessary measure in the orthodontic treatment in order to prevent overexpansion. This is in accordance with Tweed's method of treatment. Our investigations, on the other hand, do not indicate any need for, or indeed point to the desirability of, making it a general aim in orthodontic treatment to correct the incisors to a practically vertical position, as will be discussed later.

Facial Prognathism.—The term facial prognathism refers to a prominence of the face in relation to the brain case and not only to a protrusion of the alveolar arches. Regarding the nature of facial prognathism I have concluded that it may arise in different ways:

1. Due to a shortening of the cranial base.
2. Due to an angular deflection of the cranial base.
3. Due to changes in the shape of the facial skeleton which cause the angle formed between the ramus and the cranial base to diminish.
4. Due to increased jaw length.

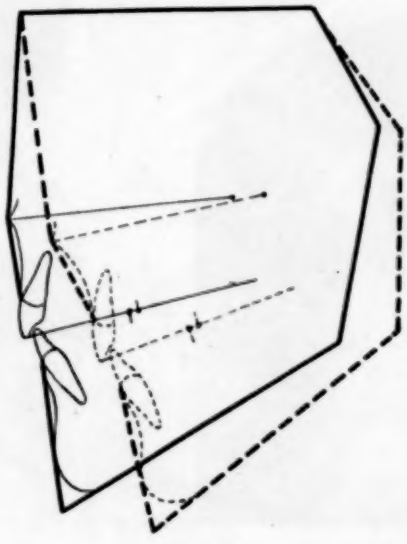

Fig. 5.—Diagram illustrating the mean difference in facial build between adult male Swedes with high degree (full lines) and with low degree (broken lines) of facial prognathism.

These different causes of prognathism may combine in various ways, and the effect of one or more causes which are active simultaneously may be compensated by one or more of the other factors having a counteracting effect, i.e., they tend to cancel each other out.

Maxillary and mandibular prognathism are generally concurrent and this may be referred to as total prognathism. The occlusion may be normal, irrespec-

tive of the degree of prognathism (Figs. 5 and 7). The difference between maxillary and mandibular prognathism is dealt with in a later section on the variation in sagittal occlusion.

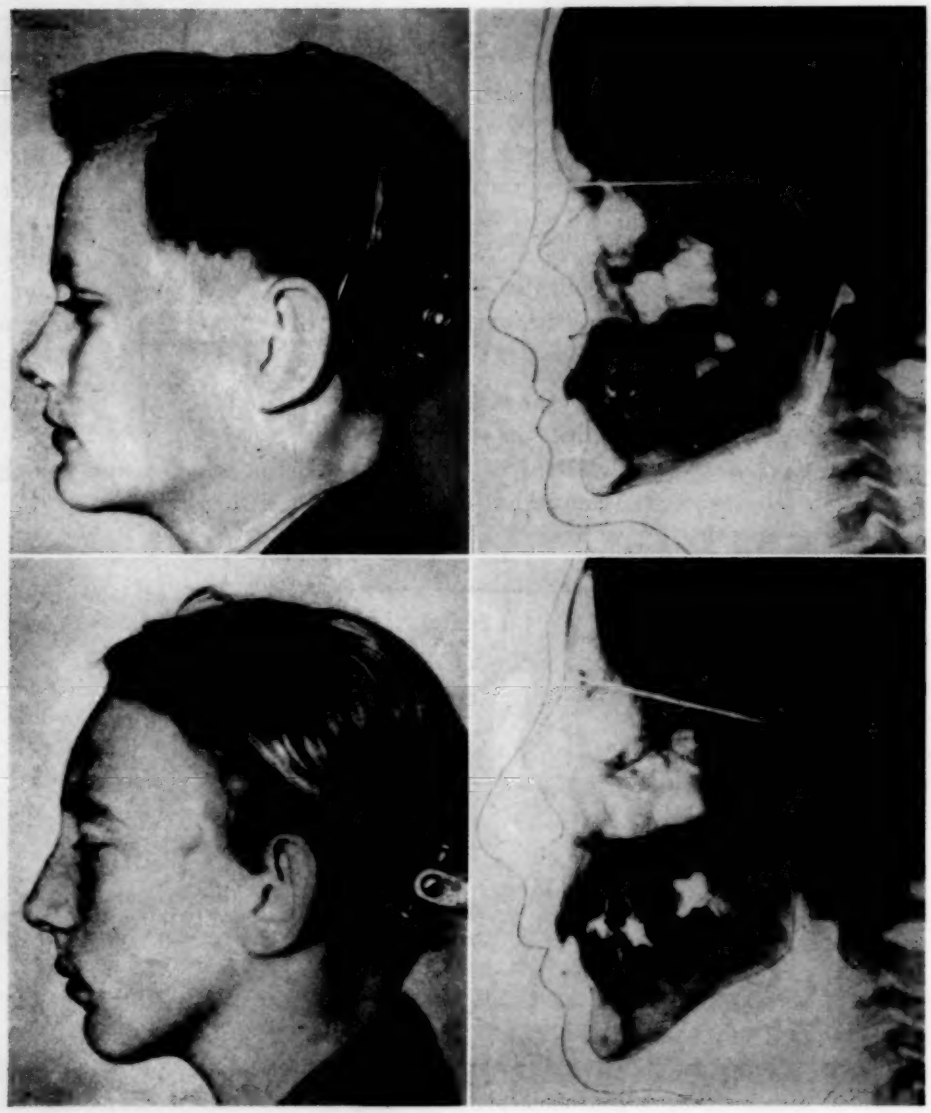

Fig. 6.—Profiles of Swedish boys, the upper exhibiting maximum and the lower minimum facial prognathism. (The figures are positioned with the Frankfort plane horizontal.) (From Björk, 1947.)

The varying degree of prognathism observed in individuals of the same racial group is thus not only connected with different lengths of the jaws. A statistical analysis has shown that a varying degree of facial prognathism depends also upon the configuration of the cranial base. This will be illustrated by comparing facial structures representing maximum and minimum facial prognathism in Swedes (Figs. 5 and 6). In the case of highly developed progna-

thism the entire facial skeleton protrudes mostly due to a deflection of the cranial base or to a shortening of its two parts. A forward inclination of ramus is also often a contributing factor. The difference in jaw size, on the other hand, influences the variation in facial prognathism only to a lesser degree.

In highly prognathic structures the ramus is, on an average, high and inclined forward, while the frontal height of the face, from the root of the nose to the chin, is small, causing the jaws to be more or less parallel with the cranial base.

A lesser degree of facial prognathism, on the other hand, is mostly accompanied by a short, posteriorly inclined ramus, combined with a large frontal facial height. In this way the jaws are given a marked rearward inclination.

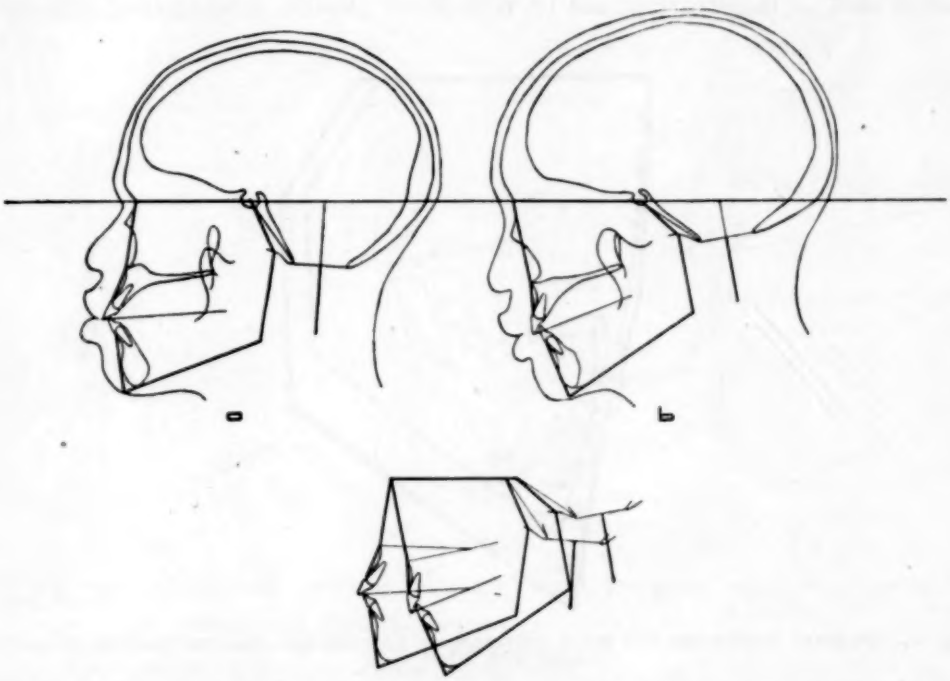

Fig. 7.—Diagram illustrating the difference in facial build in the case of (*a*) maximum and (*b*) minimum facial prognathism in adult male Bantus. A comparison of these diagrams is given in the lower figure. (From Björk, 1950.)

The inclination of the occlusal plane or the mandibular base plane is thus intimately correlated with the degree of facial prognathism, and depends upon the shape of the cranial base, the inclination of ramus, and the proportion in height between ramus and the facial profile. The Frankfort-mandibular plane angle which has been used for purposes of diagnosis in orthodontics is thus not dependent on any bite characteristic and will not provide any information relevant to the bite formation. The correlation between the inclination of the mandibular plane and the prognathic facial angles is very marked, whereas that between the same inclination and the degree of overjet is practically nonexistent. Both facial types, i.e., the markedly prognathic type of rectangular shape and the least prognathic, triangular type, are to be regarded as normal variations. It is note-

worthy that the same individual variations in facial prognathism are to be found among the Bantus, which is illustrated in Fig. 7. The Frankfort-mandibular plane angle thus varies in the same way in different races, irrespective of whether malocclusion is a common occurrence or not.

During the growth period subsequent to the first years of life the prognathism of the entire face increases somewhat due to continued growth of the jaws after the cranial base has attained its ultimate size (Fig. 8). This increase will on an average be slightly greater in the mandible than in the maxilla and this in turn leads to a slight change in occlusion. The effect of this is to reduce the maxillary overjet in children as they approach maturity. Individual variations naturally occur, and these may best be investigated by follow-up studies such as those carried out by Broadbent, Brodie, Sillman, and others.

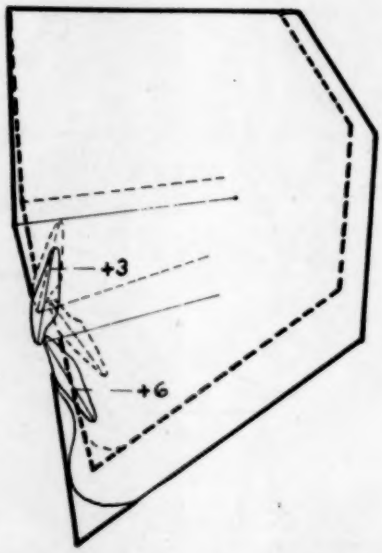

Fig. 8.—Diagram illustrating the mean difference in prognathism between Swedish 12-year-old boys and adult men.

Variation in Sagittal Occlusion.—After this short orientation of the normal variation in prognathism the relationship between facial structure and occlusion of the teeth will be discussed.

A discrepancy in the relationship between the upper and lower jaw may be due to changes in the facial or cranial structure or to some local effect, confined to the dental arches. Both factors may, of course, be responsible. However, local changes in the dental arches can only exercise a limited effect, while abnormal facial or cranial proportions may produce very marked changes. Statistical analysis of the relation between variations in sagittal occlusion and the facial build has shown that this relation becomes more evident by basing the analysis on the degree of overjet of the incisors than by employing the Angle classification.

The possible causes of maxillary overjet (horizontal maxillary overbite) will be considered first (Fig. 9). The three main causes of maxillary overjet are:

I. A relative difference in basal prognathism. This is the case when the upper jaw as a whole is more prognathic than the lower (Fig. 9, *a*).

II. A relative difference in alveolar prognathism. This condition indicates that the upper arch protrudes in relation to the lower alveolar arch, but the jaws or jaw bases are in normal relationship. This may be due either to an elongated upper or shortened lower dental arch (Fig. 9, *b*).

III. A change in the maxillary overjet may also occur, without any changes in the basal or alveolar prognathism, due to the inclination of the incisors, i.e., when the maxillary incisors are inclined forward or when the mandibular incisors are inclined back (Fig. 9, *c*).

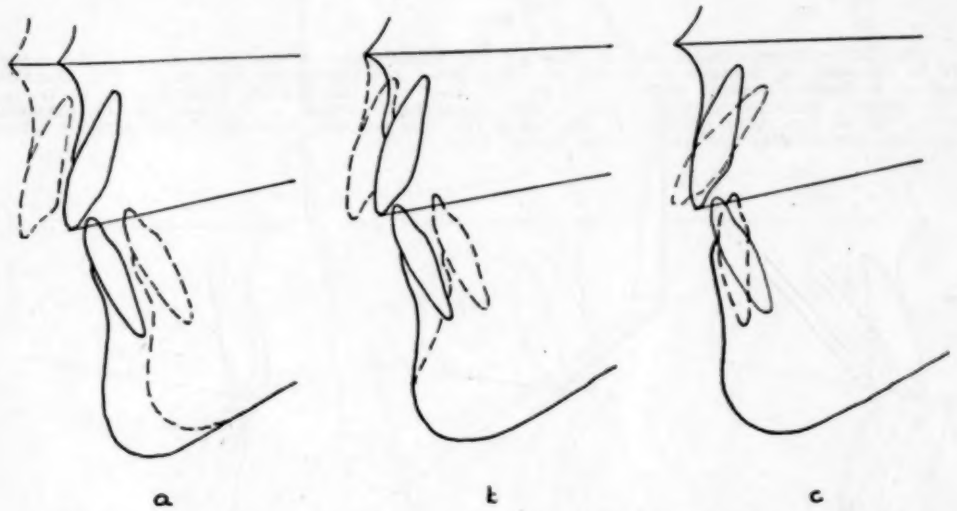

Fig. 9.—The three main causes of maxillary overjet (horizontal overbite) shown by the broken lines:
a, A relative difference in basal prognathism.
b, A relative difference in alveolar prognathism.
c, Inclination of the incisors. (From Björk, 1947.)

The first main factor, which is the relative difference in basal prognathism, arises from one of the factors in the facial or skull structure causing prognathism affecting the upper jaw more than the lower jaw (Fig. 12). Such factors are:

1. The relative size of the jaw bases. A relative difference in basal prognathism may arise when the base of the upper jaw is especially long or the lower jaw especially short.

2. The relative position of the jaw bases. A relative difference in basal prognathism may occur when the base of the lower jaw as a whole recedes in relation to the upper jaw. This may be due to:

a. Long cranial base.

b. Relatively straight cranial base.

c. Ramus inclined rearward.

3. The mobility of the jaw joint. The position of the lower jaw may to some extent be affected by a displacement of the condyles in the fossa in cases of forced bite.

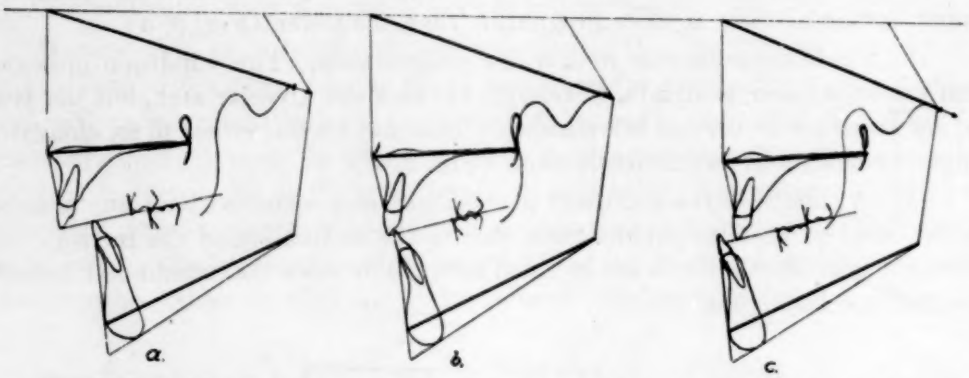

Fig. 10.—Diagrammatic sketch showing the significance of the formation of the cranial base in relation to changes in occlusion. The jaws are the same size in all the diagrams. Diagram *b* depicts normal occlusion when the jaws and the cranial base are in proportion. If the cranial base is elongated (*a*), a corresponding increase is obtained in the maxillary overjet. If, on the other hand, it is shortened (*c*), the relative position of the jaws is altered to produce mandibular overjet. (From Björk, 1950.)

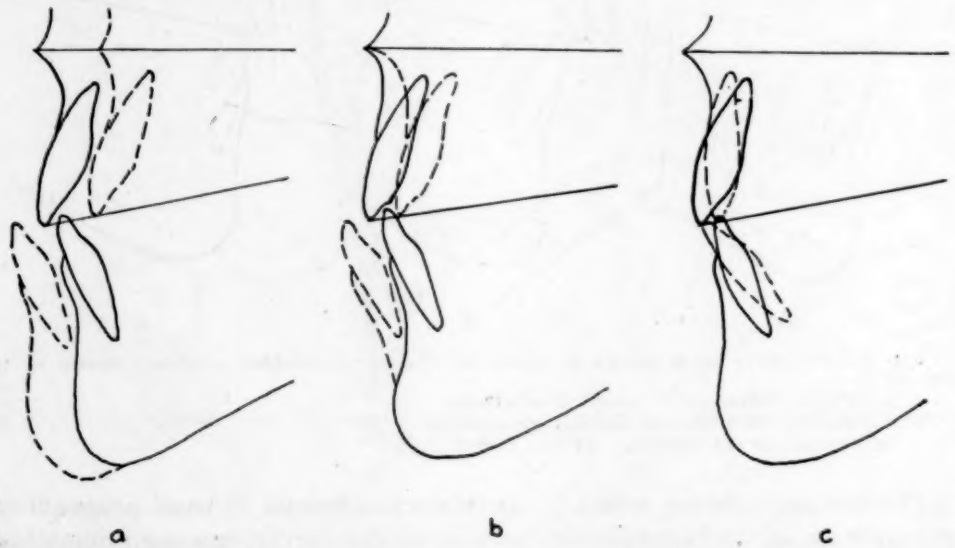

Fig. 11.—The three main causes of mandibular overjet (horizontal overbite) shown by the broken lines:
a, A relative difference in basal prognathism.
b, A relative difference in alveolar prognathism.
c, Inclination of the incisors. (From Björk, 1947.)

The diagrams in Fig. 10, *a* and *b* illustrate how maxillary overjet may arise with jaws of normal size combined through a long cranial base. (The length of the cranial base from nasion to articulare or basion depends on the length of the anterior, as well as the posterior, portions of the base and on the angle formed between the two.)

The inclination of ramus (expressed by the angle sella—the jaw joint—the jaw angle) constitutes a measurement characteristic of the shape of the lower jaw.

(A pronounced rearward inclination gives a reduction in jaw length, from the jaw joint to the point of the chin; see Fig. 12.)

In the same way, three main causes of mandibular overjet (horizontal mandibular overbite) may be distinguished (Fig. 11):

I. A relative difference in basal prognathism. In this case the lower jaw as a whole protrudes in relation to the upper jaw (Fig 11, *a*).

II. A relative difference in alveolar prognathism. This may be the case when the lower alveolar arch protrudes in relation to the upper alveolar arch, the jaw bases being in normal relationship (Fig. 11, *b*).

III. The inclination of the incisors may also affect the overjet, the maxillary incisors being inclined inward or the mandibular incisors inclined forward (Fig. 11, *c*).

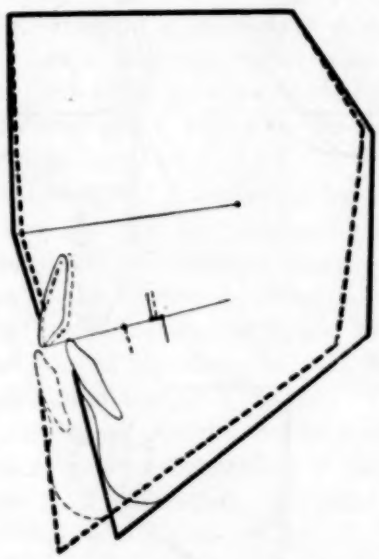

Fig. 12.—Diagram showing the mean difference in facial build and formation of cranial base between patients with pronounced maxillary overjet (5.5 mm. and more, full line diagram), and patients with mandibular overjet (broken line diagram), all adult Swedish males. (From Björk, 1947.)

Here the relative difference in basal prognathism is caused by those prognathic factors which affect the lower jaw more than the upper jaw (Fig. 12). Such factors may be:

1. The relative size of the jaw bases. The upper jaw base is especially short or the lower especially long.

2. The relative position of the jaw bases. The base of the lower jaw as a whole protrudes in relation to the upper base due to:

a. Short cranial base.

b. Deflected cranial base.

c. Ramus inclined forward.

3. The mobility of the jaw joint. The mandibular overjet is increased by a forced bite as the jaws are closed.

Fig. 10, *b* and *c* illustrate how mandibular overjet may arise in normally sized jaws in combination with an exceptionally short (or very bent) cranial base.

The statistical analysis of the Swedish material indicates that the variation in sagittal occlusion (pronounced maxillary overjet on the one hand, and mandibular overjet on the other) is due chiefly to the first main factor, which is the difference in basal prognathy between the upper and lower jaws. Taken as a whole, the variation in occlusion thus depends mainly on factors outside the bite itself (Fig. 12). In individual cases the three main factors may be combined in different ways. Determination of the different individual combinations is a matter of clinical significance.

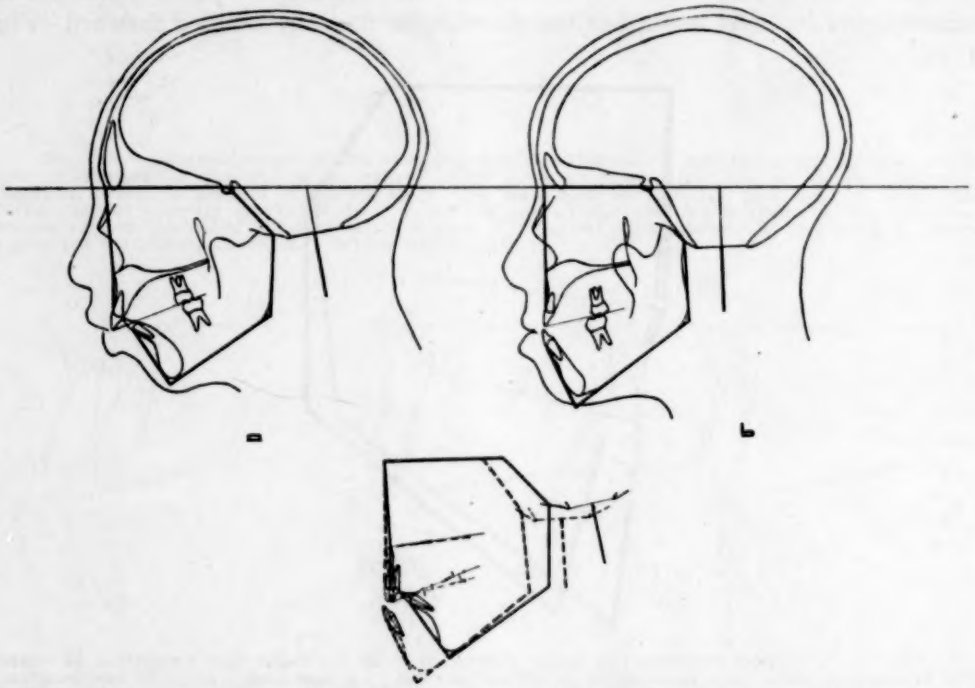

Fig. 13.—Diagrams illustrating the influence of the configuration of the cranial base on occlusion in actual cases. In *a* is shown a case with pronounced maxillary overjet, and in *b* a case with pronounced mandibular overjet in primitive adult male Bantus. A comparison of these two diagrams is given in the lower figure. (From Björk, 1950.)

Sagittal irregularities of the bite are therefore mainly symptomatic of disproportion in the various parts of the facial structure and the cranial base. Analysis has shown that the relation in size and position of the jaw is a significant factor for the occurrence of differential prognathism in the jaws. In some cases one jaw many be exceptionally long in relation to the other jaw, while in other cases the sizes may be proportionate but the relative positions may vary owing to the shape of the cranial base. Usually both factors occur in combination, either assisting or counteracting each other. The influence of the cranial base in this connection, as illustrated in Fig. 10, is often evident from the x-ray exposure at first sight. Compare this with Fig. 13 which shows extreme cases of occlusion in Bantus. As a result of variations in the relative position of the jaws the x-ray contour of the pterygomaxillary fissure in cases of distal occlusion

may often be located considerably in front of the anterior contour of ramus, whereas in cases of mesial occlusion the contour of this fissure will be located behind the ramus contour (Fig. 10).

Methods of bite diagnosis such as those evolved by Simon do not furnish sufficient guidance for the purpose of choosing suitable orthodontic therapy, the degree of prognathism of either jaw being not merely a measure of the jaw length, as previously mentioned.

It should be noted that the difference in prognathism between the jaws is independent of the degree of facial prognathism. Distal and mesial occlusion consequently occur irrespective of whether the facial type is markedly prognathic or not. This is also borne out by the calculations of the correlation which show that the coefficient of correlation between the overjet of the incisors and the facial prognathism is very low and not significant (0.10 ± 0.06). Distal occlusion may therefore be found in a facial type which exhibits a low degree of maxillary prognathism, but it may also occur when the maxillary or facial prognathism is great. It is for this reason that I have chosen to use the anthropologic definition of prognathism, which refers to the facial type, instead of its use as a term denoting malocclusion.

It will be seen from the material investigated by the author that overjet is in many cases partly compensated by the inclination of the incisors when the difference in maxillary and mandibular prognathism is great. It would appear, therefore, that the position of the incisors accommodates itself to the jaw structure. Thus the mandibular incisors are often found to have a marked forward inclination in cases of pronounced maxillary overjet, and a more rearward inclination in the case of mandibular overjet (Fig. 10). Correction of the incisors to an upright position in such cases would serve to accentuate the overjet, with the result that the difference in the prognathism of the upper and lower arches becomes still more pronounced. Treatment in such cases should aim at correcting the incisors according to the jaw structure.

Case Analysis.—The degree of facial prognathism can easily be determined in each individual case. Measurements taken of the cranial base and the jaw proportions, the inclination of ramus and the jaw angle, and others, provide further information about the facial type in question. As various characteristics are combined in diverse ways in different individuals it is only possible to arrive at a more complete analysis of the facial pattern by collating these factors; it is not sufficient merely to measure a single characteristic.

For clinical needs it may suffice to attempt to establish the manner in which the three main factors determining the degree of overjet are combined, i.e., to measure the difference in basal prognathism, the difference in alveolar prognathism of the jaws, and the inclination of the incisors. By considering these factors in relation to each other it will then be possible to form an opinion as to how the case in question will respond to treatment. Provided that the prognathism of the jaw bases is proportional in both jaws, i.e., the mutual sagittal position is normal, and the overjet is mainly due to a difference in the alveolar prognathism or to inclined incisors, the chances of successful orthodontic correction of the overjet may be considered good. On the other hand, if the difference

in basal prognathism is great, the possibility of effecting normal occlusion will be remote or nonexistent. This is borne out by x-ray analysis (Brodie and others) which indicates that the effect of treating sagittal malocclusion is mainly restricted to the dental area. The mutual position of the jaw bases can apparently not be altered beyond what may be regarded as normal growth change during the term of treatment, or by the movement at the jaw joint that can be produced by a forced bite. Thompson's x-ray analysis of the jaws in the rest position is a useful method of determining whether the difference in basal prognathism is real or due to forced bite in closing the jaws. The method of analyzing the position of the condyles developed by Lindblom is also valuable in this connection.

The inclination of the incisors is related to the facial type, the age, and other factors, possibly also with sex. It varies widely from individual to individual, even in cases of well-positioned teeth. Nevertheless, measurements of the angles of inclination are a valuable aid in determining whether or not the overjet may suitably be corrected by altering the inclination.

From a clinical point of view the most useful measurements obtained from x-ray exposures of cases of sagittal malocclusion (maxillary or mandibular overjet) are, in the author's experience, the following:

1. The difference in basal prognathism.
2. The difference in alveolar prognathism.
3. The inclination of the upper and lower incisors.

This type of x-ray analysis is illustrated in the following by diagrams of two clinical cases, the first of which exhibits pronounced maxillary and the second mandibular overjet.

TABLE I. VALUES FOR PROGNATHISM, INCLINATION OF THE INCISORS, AND PROFILE ANGLE FOR TWO TREATED CASES IN COMPARISON WITH MEAN VALUES FOR SWEDISH BOYS AND ADULT MALES

	MEAN. ♂		CASE 1. ♂		CASE 2. ♀	
	12 yr.	21-22 yr.	14 yr.	19 yr.	11 yr.	15 yr.
1. Max.bas.progn.	86	88	88	90	80.5	81
2. Max.alv.progn.	84	85	87	86	76	78
3. Mand alv.progn	80	82	78	82	80	80.5
4. Mand.bas.progn.	79	82	77	80	80	82.5
1-4. Diff.bas.progn.	+7	+6	+11	+10	+0.5	−1.5
2-3. Diff.alv.progn.	+4	+3	+9	+4	−4	−0.5
5. Incl.upper inc.	58	64	49	(+18)	55	(−7)
6. Incl lower inc.	70	74	68	(+5)	87	(+8)
7. Diff. in subspinal and supramental progn.	+4	+2.5	+9.5	+6	−6	−5.5
8. Profile angle: nasion—subspinale—pogonion	172.5	177	164	171	197	196

Table I gives the values of prognathism and incisal inclination for the two cases subjected to orthodontic treatment, compared with average values. Figs. 14 and 15 show x-ray diagrams of the first case, in which the maxillary overjet was 14 mm. Here the base of the lower jaw is recessive in profile, compared

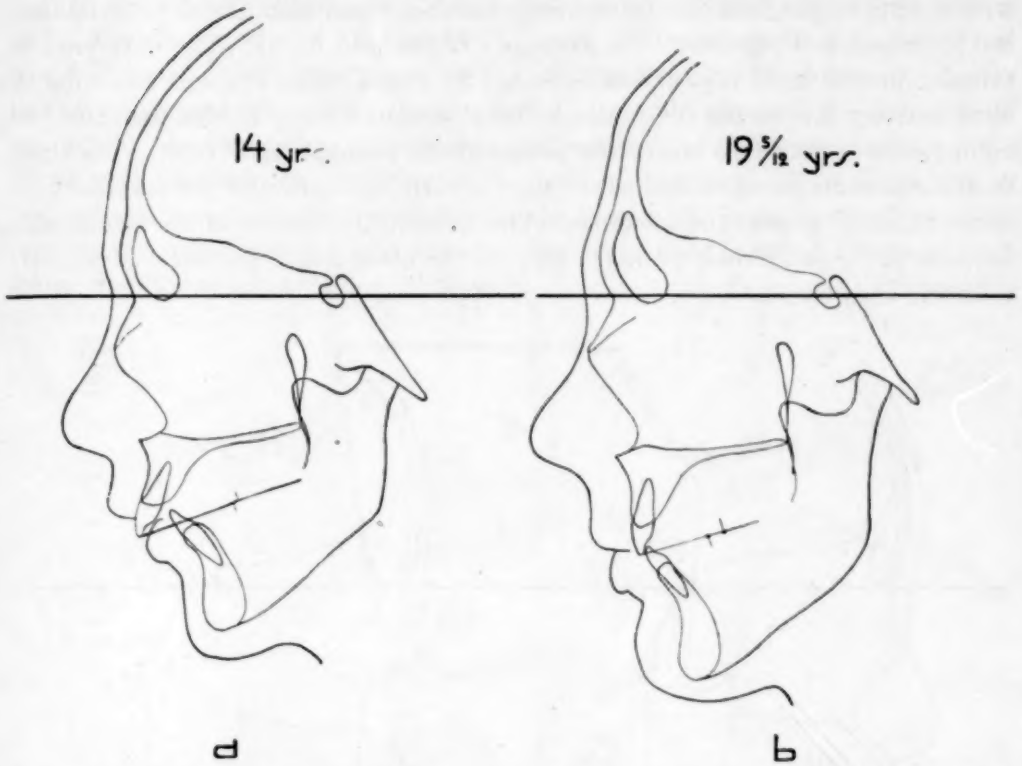

Fig. 14.—Facial diagrams of Case 1 with extreme maxillary overjet; *a*, before treatment and *b*, three years after end of retention.

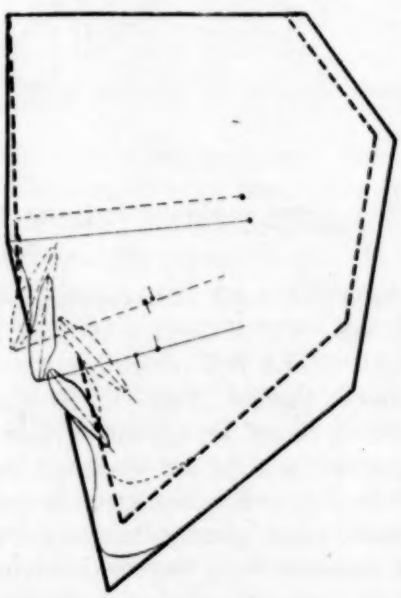

Fig. 15.—A comparison of the two diagrams shown in Fig. 14.

with the upper jaw, and the difference in maxillary and mandibular prognathism is 11°, which is 4° greater than average (12-year-old boys). The difference in alveolar prognathism is of the same order, 5° greater than average, and thus almost entirely due to the difference in basal prognathism. In this case the first main factor is therefore one of the causes of the pronounced overjet. The third factor also contributes to this effect, the forward inclination of the maxillary incisors being 9° greater than average. The forward inclination of the mandibular incisors (2° greater than average) has, on the other hand, the effect of slightly reducing the overjet.

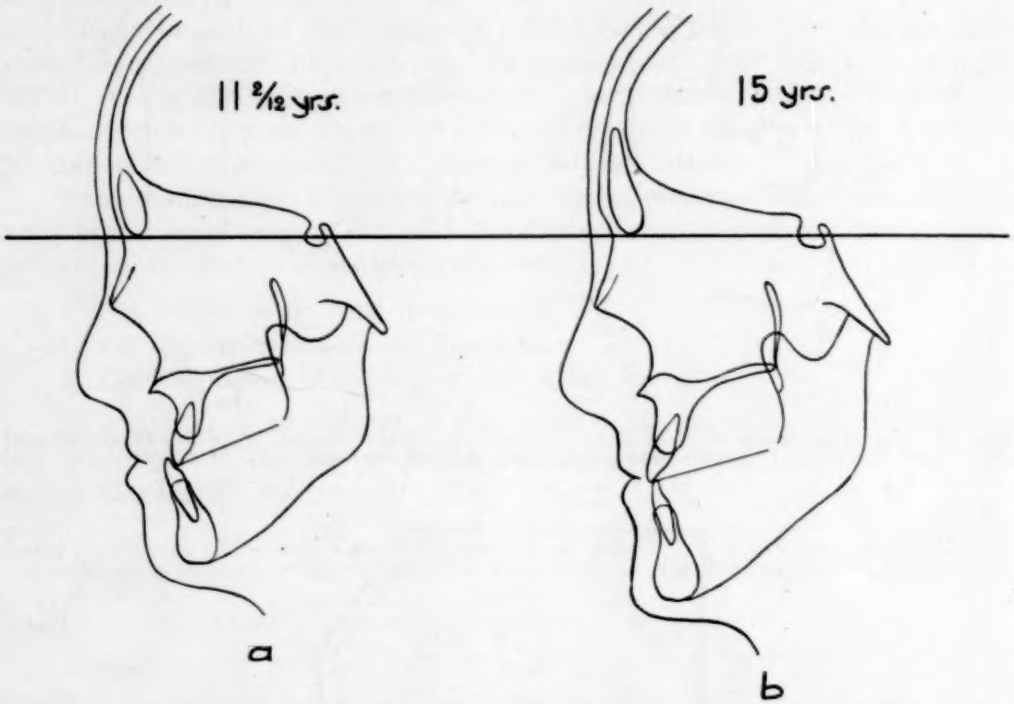

Fig. 16.—Facial diagrams of Case 2 with mandibular overjet; *a*, before treatment and *b*, two years after end of retention.

By applying orthodontic treatment (labiolingual technique) it was possible to reduce the overjet to 5 mm. The difference in basal prognathism diminished only by 1° (from 11° to 10°), and this insignificant reduction appears to correspond to the normal growth change (Fig. 8). No appreciable change in the position of the lower jaw does, therefore, appear to have resulted from the treatment, the chief effect of which was to reduce the difference in alveolar prognathism by 5° (from 9° to 4°) and to upright the maxillary incisors by 18°. The inclination of the occlusal plane usually changes during growth. The change in incisal inclination has therefore been expressed in terms of the angle which in the diagram (Fig. 15), is formed on the one hand by the longitudinal axes of the maxillary incisors before and after treatment, and on the other by the angular difference between the axes of the mandibular incisors.

In the second clinical case the mandibular overjet was 3 mm. (Figs. 16 and 17). The prominence of the base of the lower jaw in relation to the upper jaw was 6.5° greater than average, while the protrusion of the lower arch in relation to the upper was 8° greater than average. Here the cause of the mandibular overjet may be ascribed to a pronounced difference in alveolar prognathism, combined with an appreciable difference in basal prognathism. The inclination of the incisors, however, tends to counteract the overjet, the maxillary incisors being inclined 5° more forward, and the mandibular incisors inclined 17° more rearward, than the average values for boys.

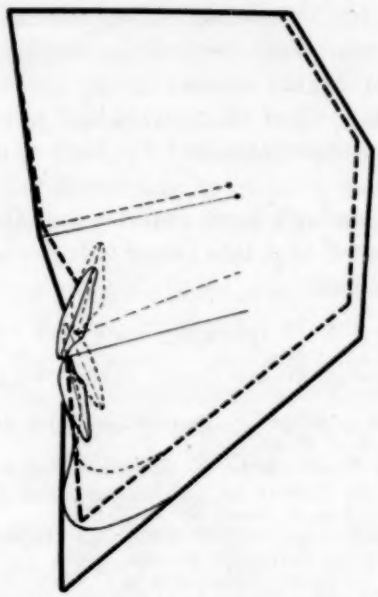

Fig. 17.—A comparison of the two diagrams shown in Fig. 16.

Orthodontic treatment (Andresen technique) had the effect of changing the mandibular overjet to maxillary overjet measuring 2 mm. This was accomplished by reducing the difference in alveolar prognathism by 3.5° (from –4° to –0.5°). The treatment increased the forward inclination of the maxillary incisors by 7° and the rearward inclination of the mandibular incisors by 8°. At the same time the difference in basal prognathism, on the other hand, was increased by 2° (from 0.5° to –1.5°). During growth the mandibular prognathism thus increased. The changes in the bite were therefore due entirely to changes in the alveolar arches and the altered inclination of the incisors.

The same method has also been employed previously by me (1947), both in the analysis of group material and individuals, in an attempt to investigate by statistical methods the connections between the various factors in the structure of the face and skull which affect sagittal occlusion. Most measurements vary with the age, and undoubtedly also with the sex. The measurements are also subject to errors of projection and errors of measurement, and the average values quoted must therefore not be taken as a generally applicable norm. One

of the greatest difficulties encountered has been to obtain exact measurements of the degree of prominence of the upper jaw base. The measurements given here refer to the maxillary basal prognathism measured to the apex of the nasal spine. The author has also tried measuring it to the base of the spine. The error of measurement is fairly large in either case, but not so great as to be significant to the diagnosis, as the variation in the differences in cases of malocclusion is often considerable.

There are naturally other ways of expressing the difference in the degree of prognathism of the jaws. As a visiting research fellow at Northwestern University Dental School I have had the opportunity of seeing the S-N-a; S-N-b analysis in operation in the Orthodontic Department (difference in subspinal-supramental prognathism). This method is simpler than the one described here. The measurement of the convexity of the facial profile (the profile angle) used in the Downs method of analysis also provides similar information. Table I includes measurements obtained by both these methods for purposes of comparison.

Cephalometric methods have been found a valuable aid in the diagnosis of malocclusion, and it is hoped that this paper will prove a useful contribution to the discussion on the subject.

REFERENCES

Björk, A.: The Face in Profile, Svensk Tandl. Tidskr., supp. 40, Lund, 1947, Berlingska Boktryckeriet.

Björk, A.: Some Biological Aspects of Prognathism and Occlusion of the Teeth, Acta odontol. Scandinav. **9**: 1, 1950.

Broadbent, H.: Ontogenetic Development of Occlusion, Angle Orthodontist, **11**: 223, 1941.

Brodie, A. G.: On the Growth Pattern of the Human Head From the Third Month to the Eighth Year of Life, Am. J. Anat. **68**: 209, 1941.

Brodie, A. G., Downs, W., Goldstein, A., and Myer, E.: Cephalometric Appraisal of Orthodontic Results, Angle Orthodontist **8**: 261, 1938.

Downs, W. B.: Variations in Facial Relationships: Their Significance in Treatment and Prognosis, AM. J. ORTHODONTICS **34**: 812, 1948.

Lindblom, G.: The Importance of Balanced Occlusion, D. Record **59**: 1, 1939.

Salzmann, J. A.: Criteria for Extraction in Orthodontic Therapy Related to Dentofacial Development, AM. J. ORTHODONTICS **35**: 584, 1949.

Sillman, J. H.: Serial Study of Occlusion (Birth to Ten Years of Age), AM. J. ORTHODONTICS **34**: 969, 1948.

Thompson, J. R.: Oral and Environmental Factors as Etiological Factors in Malocclusion of the Teeth, AM. J. ORTHODONTICS **35**: 33, 1949.

Wylie, W.: The Assessment of Anteroposterior Dysplasia, Angle Orthodontist **17**: 97, 1947.

SMEDJEGATAN 8.

WHAT DOES ONE MEAN BY ORTHODONTICS?

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THE value of a definition must depend upon how successful one is in making others understand what the word defined actually stands for. Have those then who attempted to define "Orthodontia" or "Orthodontics" succeeded in this respect? I would like to consider this question, for it is my belief that much of the present-day confusion has its origin in the many and varied definitions that have been handed down to us.

The practical utility of history is to classify first, then to systematize the events, the changes, and the developments of the past in such a way that what has been revealed can then furnish the basis for an interpretation of present conditions.

In our study we found that medicine was the foster parent of dentistry and orthodontics and that a large proportion of our early orthodontic contributions were the work of the physician. According to C. F. Delabarre, in 1819, "The laws which govern the expansion, growth and arrangements of the teeth, are properly the patrimony of the physician, who should understand them, in order to direct the dentists whenever . . . he is not furnished with sufficient information on all duties of his profession." We thus learn that such problems as dentition were not considered worthy of attention by the dentists because of the superficial manner in which they studied second dentition.

In 1839 Chapin A. Harris wrote that while "the first dentition has received its due share of attention from medical men, the adult teeth has been almost entirely overlooked by them, because the management of it has never been considered as constituting any of the duties that belong to their department of medicine. Nor has it been accurately described by dentists generally because a knowledge of physiological science, which alone can qualify them for such a task, seldom constitutes any part of their requirements."

Therefore the treatment of teeth was believed to be predominantly a matter of mechanics; the physiological nature of dental problems had as yet not been considered. A carious tooth needed only to be filled with gold, silver, etc., or the tooth was mechanically removed and replaced by metallic or other substitutes. Even the idea of prevention expressed itself in a manner of mutilation, the approximal surface being filed away in an attempt to prevent further decay. This was the period known as "the extension for prevention."

Thus we find that the vision of the dentist seldom went beyond a tooth or those immediately adjacent. When the effect of mutilation upon the form of the arches was noted gradually the viewpoint changed and pure mechanics

Read before the Alumni Postgraduate Lectures, College of Dentistry, New York University, Oct. 21, 1950.

gave way to physiologic evidence. The teeth then became the unit of a series, the series an interdependent part of the masticatory apparatus, and this a mutually dependent part of the whole individual.

This extension of dental vision marked the dawn of the realization that dentistry was primarily concerned with physiologic problems rather than mechanical ones. We now accept the fact that the activities, processes, and phenomena incidental to, and characteristic of, living tissue are the important factor.

Today the purpose of dentistry should be to assist in establishing and maintaining the normal functional activity of the masticatory apparatus, part of the living organism. If orthodontics is a part of dentistry every means should then be employed to avoid mutilations—the mechanical concept—and to preserve, retain, and restore what nature gave to us.

Though Harris, in the paragraph previously quoted, showed that he considered that the dentist must have a knowledge of physiologic science, yet in his dictionary, published in 1849, defined orthodontia as "that part of dental surgery which has for its object the treatment of irregularities of the teeth" and orthodontics as "relating to the treatment of irregularities of the teeth."

Forty years later, S. H. Guilford (first edition) again stated it to be "that branch of dental practice which relates to the correction of irregularities of position of the human teeth."

The definition of orthodontia generally cited is that of Angle: "that science which has for its object the correction of malocclusion of the teeth" (sixth edition).

In all of these definitions, and as I will later show by others, emphasis is placed upon the teeth and their occlusal relation, and nowhere does one convey the more vital factors which constitute the very essence of orthodontics; therefore, a definition which fails to present a true idea of this field and does not designate a wider sphere of phenomena than merely occlusal relations of the teeth is wholly inadequate.

When Angle incorporated the word "science" in his definition, he in turn opened the way for others to further confuse the definition. In modern times we find that the term "science" is being applied to manifold human activities. Orthodontics and dentistry may be an art but they cannot be considered a science, for, like surgery, they are in the main a special technique of medicine, understood in the broad term of serviceable enterprise for the benefit of ailing man. That as a technique it may proceed in an orderly and systematic manner, i.e., "scientific," may be granted, but a science it can become only when its philosophical basis is developed on broad lines so that the role of dental suffering, as an effect or a cause in civilization, for instance, is better understood. Science is not merely the sum of factual knowledge; it has to establish relationships and not by purely mechanical inductions, but by an understanding and insight into fundamentals.

In the light of the above thought, let us examine a few of our present-day definitions. Ottofy, Anthony, Dunning and Davenport have completely lost

sight of the true significance of what orthodontics actually should mean when they persist that it is "the correction of dental irregularities by the movement of malposed teeth to correct positions; the art and science of the treatment of malocclusion"—purely a mechanical concept. In such a definition there is conveyed the idea that orthodontics is a part of dentistry; however, as a definition they fail to present its present state of development.

Abram Hoffman, in 1933, defined orthodontics as "a biomechanical science" having as its object "the prevention or correction of malocclusion of the teeth and the harmonizing of the structures involved so that the dental mechanism produced will be best suited to the functional activities of the human organisms as a whole. In theory or in practice it is a study of growth and development linked with physical and mechanical principles."

J. D. McCoy (1927), prior to Hoffman, proposed the following definition: "As a study of dental and oral development, it seeks to determine the factors which control growth processes to the end that a normal functional and anatomical relationship of these parts may be realized, and aims to learn the influences necessary to maintain such conditions once established."

The American Dental Association recently in a booklet entitled *Orthodontics, Questions and Answers* asks the following: "What is Orthodontics?" and then offers the following explanation: "It is the name applied to one division of the practice of dentistry. It has to do with the detection, study, prevention and correction of irregularities in tooth position and jaw relationship and deformities of the face produced by these conditions. The specialist who performs orthodontic diagnosis and treatment is called an orthodontist."

"What is abnormal tooth arrangements called?" is the next question. It is, they state, that "the technical name for this condition is 'malocclusion.' This is the term applied to irregularities of tooth positions and occlusion (the fitting together of the teeth on closing the jaws). Malocclusion or dental deformities may in turn lead to deformities of the jaw and face, otherwise known as facial deformities." Is this an improvement over the definitions cited, and how do these explanations tie in with the definitions previously cited? It should be of interest to explore the literature around 1840 to learn just what our early confreres thought about the subject. Lefoulon, in 1839, two years before he used the word *orthodontosie*, defined *orthopédia dentaire* as "the treatment of congenital and accidental deformities of the mouth." To appreciate this definition we must be familiar with Desirabode's definition of dentistry. "It is an art which no word expresses directly, but which we will call Odontology and Odontechney when it is confined to the study of teeth and Stomatonomy, when it comprehends all the parts which compose the mouth."

Some years earlier Nicolas-René Marjolin felt that "the exercise of the art of the dentist constantly demands knowledge greatly extended and complicated . . . Dentistry does not consist in a knowledge of the most evident affections of a tooth, and the performance on it of the most simple operations and the most clumsy manipulations; it is necessary to have the most accurate knowledge of

the anatomy of the mouth, particularly that of the teeth, and to unite general notions of anatomy, physiology, medicine, hygiene, mechanism, and still more. . . ."

Thus we learn that men considered that "orthodontia" dealt with the functional activities of the dental arch as a whole, with the laws that underlie its growth and development, with the functional interactions of the teeth, their supporting and surrounding structures, and with the organism as a whole. Today many have lost sight of these facts.

Lefoulon in 1859, however, considered the word *orthodontosie* inadequate and again reverted to *orthopédie dentaire*, "that part of the art of dentistry that consists of correcting the congenital and accidental deformities of the teeth." Now through long usage of the word "orthodontia" it is almost impossible to change our terminology. Much of the present-day confusion could be avoided if we were to redefine orthodontics, for the nature of our problems demands that we think in terms of dental orthopedia and that our vision must be broadened and we must look through and beyond the problems of occlusion to the life activities of the dental arch, for the teeth express but a part of the complex of forces which determine the form of the arch.

The British Society for the Study of Orthodontics have adopted a definition that apparently remains unknown in this country. It is so worded that the most important problem is stated first and the least last. The definition reads as follows: "Orthodontics includes the study of the growth and development of the jaws and face particularly and the body generally as influencing the position of the teeth"—that is, the study of the normal; the following portion pertains to etiology—"the study of the action and reaction of internal and external influences on this development," and ending with "and the prevention and correction of arrested and perverted development." In contrast with many of our definitions one finds that the least important factor, the treatment, has been placed last.

From the definitions cited one can readily observe many interpretations of fundamental principles, and why a diversity of opinions has therefore arisen, giving rise to much misunderstanding as to just what orthodontics is.

In closing may I bring to your attention the following as found upon the title page of Lefoulon's *Nouveau traité théorique et pratique de l'art du dentiste* (1841) (*New Treatise on the Theory and Practice of Dental Surgery*, 1844), *"Arracher n'est pas quérir, c'est detruire"* ("To extract is not to cure, but to destroy").

Would that it were possible to include in the definition these words, for then one might obtain a better concept of the meaning of orthodontics.

THE DENTAL PROBLEM OF THE SPASTIC OR THE ATHETOID CHILD

DON CHALMERS LYONS, D.D.S., M.S., PH.D., JACKSON, MICH.

THE cerebrally damaged child presents many problems from the standpoint of training, development, and of health management. It has been variously estimated that there are at least 170,000 of these children. Numerous volunteer agencies, and there are a few state groups, cooperate in their welfare and in training facilities, but little is, or has been, done from a dental standpoint. Very few of the organizations which concern themselves with the care of this group of unfortunates allot funds for a dental program, yet rehabilitation, physical well-being, and development of individual confidence must include such treatment either on an individual or group basis.

Over a period of several years the opportunity has presented itself to examine such a group of handicapped children during a period of out-of-doors camping in the summer at Camp Teetonkah, Wolf Lake, Mich. The children who attend this camp come from various economic groups and all types of families in the surrounding county, but in general only a few of the group can pay their own way. Outside funds are obtained to maintain the camp and staff. This may explain the variance in this report and that of Leonard,[1] who recently stated that the dental condition of his group was slightly better than the average for normal children.

As is well known, the spastic or the athetoid child finds personal care difficult, this being particularly true for dental hygiene measures. Children in these groups either have muscles which are nerve blocked from normal control and activity, causing either stiffness or hyperactivity, or, in other cases, their muscles may be normal in flexibility but they make involuntary motions and the individual is unable to control his activity as desired. Another type may be seen in which the reactions are clumsiness, instability of equilibrium, and lack of coordination of motion and muscle activity. All three groups must be distinguished from the polio cases in which many of the above symptoms are simulated. There are, however, all grades of reaction to spasticity and athetosis, each patient in a group reacting differently although the general picture is similar.

Fifty children were examined at this year's camp and their dental needs tabulated. These children were selected at random to get an over-all picture, no effort being made to separate them by sexes, type of handicap, or economic status. All were white children between the ages of 10 and 14 from the immediate county. This age group was selected because it is the period when the greatest number of permanent teeth are establishing themselves in

the growing mouth and jaws, and the foundation of future dental health is being built. Yet examination disclosed that these children considered as a group were dental cripples at the age of 12.

Thirty-six of these children, or 72 per cent of the total, had malocclusion of the teeth in varying degrees which needed orthodontic correction. Of this group, 16, or 45 per cent, had separated anterior teeth with definite protrusion of the maxilla and maldevelopment or underdevelopment of the mandible. Nine children, or 25 per cent, had crowded teeth in either the mandible or maxilla, or both, due to faulty growth of one or both of the jaws. Open-bite or inability to close the anterior teeth in occlusion was noted in 7, or 20 per cent. If we include the partial open-bite present in varying degrees associated with the separated teeth and protrusion of the maxilla, the total in this group was 65 per cent. Other types of malocclusion were noted in 4 or 10 per cent of the children examined.

Examination disclosed the fact that the 50 children had 82 decayed permanent teeth. In addition to these there were 43 permanent molars so greatly involved by caries that the pulps were exposed, the roots infected, and extraction was indicated. Thirty-two permanent teeth had already been extracted and 37 had been filled. This means that a total of 194 permanent teeth out of a possible 900 for the 50 children were decayed, missing, or filled. In other words, one-fifth of these children's permanent dentition was already damaged or destroyed at the average age of 12.

Only 8 of the total group examined at this time had received adequate dental care or needed no dental reparative treatment. Three of these children, however, needed orthodontic intervention to correct malocclusion.

A high incidence of caries involvement of the anterior teeth was noted, and in nearly all cases there was considerable gingivitis. There were two cases of extensive gingival hypertrophy. A small number had broken or chipped anterior teeth due to falls or involuntary closure of the teeth when an eating utensil was in the mouth. The lack of stability or incoordination or oral musculature is one of the problems of dental treatment. Many dentists have reported that they have difficulty in retaining fillings in anterior teeth for this reason, which emphasizes the need for preventive measures.

It has been stated that about one-third of the cerebrally damaged children are able to take limited care of themselves or can be trained to. This same group could also receive ordinary routine dental care, for their reactions are slight or of a type which produce little handicap to normal life. Another third can be trained to some limited controlled activity which could include almost complete dental care. The others are divided among the bed-ridden, wheel chair bound, and those whose involuntary movements are so sudden or violent that a program of dental care and hygiene can be planned only with great difficulty.

This sampling of the dental problem of these children indicates their needs. One cannot draw conclusions from the limited scope of this investigation, but some suggestions appear evident. Particularly striking is the great need for

some type of orthodontic care. In some instances only preventive measures may be possible. The handicap these children have of uncontrolled muscle actions associated with halting speech, lack of self-confidence, education problems, is further complicated by the esthetic problem of grimaces, tongue movements, and of broken-down dentition. Their physical condition is complicated by infected teeth and inability to masticate food properly due to lost or aching teeth. These children grow up. It is the hope of the agencies responsible for their care that a goodly number can be made self-supporting with the proper education and training. With this group, dental cripples at the age of 12, and most of them unable to have teeth restored by bridgework, partial dentures, or full dentures, what is their dental future?

The economic status of the group examined may have some influence on these findings. However, most of the parents interviewed stated that they were having some limited dental treatment for their child, but this appeared to be only extractions when the child complained of pain. While part of the dental problem of these children lies in parent training of the need for earlier and more adequate dental treatment, the agencies delegated to their care are greatly at fault in failing to appreciate the great need for dental care. A spot check of local agencies was made and none reported that they had funds for dental care of their charges. Children's Aid would, however, give complete dental care, but reported that they had only an occasional child of this group to take care of. The dental outpatient department of the local hospital would take some emergency care of the few who were able to go to school, and the County Welfare Agency would have extractions taken care of only if the parents were receiving direct relief. Crippled children's agencies which were directly responsible for the care of these children all reported that they had no funds for dental care. Recently President Truman signed the Social Security Amendment of 1950 which doubled certain benefits available to crippled children, but dental services seem to have been forgotten even here.

It is obvious that total rehabilitation of the child must include the dental treatment which this limited survey shows is necessary. All children who can be taught adequate dental care must receive this information as part of their training program. Fluorine treatment should be given routinely. Dietary and hygiene measures should be instituted to control the rampant gingivitis noted. Lastly, the public and private agencies must include ample funds in their budgets for this part of their responsibility.

REFERENCE

1. Leonard, R. C.: Dentistry for the Cerebral Palsied, J. Am. Dent. A. 41: 152-157, 1950.

420 W. Michigan Ave.

International Luncheon

A report of the International Luncheon of the American Association of Orthodontists held at the Edgewater Beach Hotel, Chicago, Ill., on Tuesday, May 9, 1950, follows.

Chairman Lunsford.—I learned just a few minutes ago of a new organization that has been formed within our group which I am sure all of you will be interested in. It is to be known as the Boys' Club. Among this group you will find Dr. Oliver White, who has been practicing orthodontics for forty-six years, Dr. Ellis, forty-six years, Dr. James McCoy, forty-four years, Dr. Flesher, forty-four years, Dr. J. Gorman, forty-three years, Dr. John Mershon, forty-one years, Dr. Fred Noyes, forty-two years, a total of three hundred two years, and I would like for the "Boys" to stand up.

We will now hear from Dr. Max Ernst, who will greet our visitors.

President Ernst.—Mr. Chairman, members of the Association and guests from foreign countries and our own country, it is indeed a pleasure and a privilege for me to extend the sincere welcome from the members of the American Association of Orthodontists to the guests who are in attendance at this session, and especially at this luncheon the very special greeting is extended to the members of the foreign countries who found it possible to be present. We are happy indeed to have you attend this session of our Association and we are honored by your presence. It is our sincere wish that the fellowship and warm feeling of friendship which you find here will bring a desire in your hearts to return to this country at your early convenience. While there may be barriers to commercial intercourse between different countries, there should be no barriers between scientists in their research and work which will tend to promote the health and well-being of the world. Science should, of course, know no bounds.

We of this country, and I am sure the same may be said for your countries, are fortunate indeed where the government is a servant of the country, freedom of expression still prevails and where scientific research may be carried on in a free, wholesome atmosphere, where freedom of thought and speech is still the heritage of the people. We who live in countries where these things are still possible should be grateful for our privilege and good fortune.

This is an informal luncheon and its purpose primarily, at least to me, is to create the feeling of good will and fellowship between the members of the Association and the guests from foreign lands and, further, to bring about mutual understanding between these individuals and organizations which are endeavoring to bring about a better condition of health generally, and especially oral health.

Again let me say we are most happy to have you enjoy all the benefits of this session, and it is our sincere desire when returning to your homes that you carry with you the best wishes of this Association.

In closing, may I propose a toast to our foreign visitors and to the countries from which they come.

Chairman Lunsford.—The next person you are to hear from will be our Vice-President, Dr. Sergio Giquel, who comes from Havana, Cuba.

Vice-President Sergio Giquel.—I feel deeply honored at having been appointed by the high officers of the A.A.O. to extend in their name and that of our Association words of sincere welcome to all of our colleagues who have traveled from other, and sometimes quite far away, lands, in order to be with us during this forty-ninth meeting of our Association and to give us the opportunity to share in their enthusiasm and interest in our science.

Every year we try to make of each new meeting something as much in accordance as possible to the ideals and inspiring thoughts of the men who, forty-nine years ago, held the first one. Day by day, we cannot but recognize how valuable and necessary to the advance of orthodontics is to practice it, keeping in mind that this, our specialized branch in dentistry, is constantly broadening its horizons and that we must meet its demands fully prepared to work for the greatest achievement possible in our special field.

The high spirit of friendliness and enthusiasm which is always present at these meetings cannot but give us beautiful assurance that we are really part of the Pan-American brotherhood in which, in spite of apparent differences, as are those of language and race, we share in common the same ideals, efforts, and hopes, which in our specialized work aim at the progress of science and the betterment of the human race.

The men who today lead our Association are the successors of those who first had the magnificent dream of making the farthest corners of the earth realize how important was the contribution of the orthodontist in the general plan for the normal development of human beings. They are proud to continue in the footsteps of those who dedicated the best years of their lives, their energy and enthusiasm, to isolate this new science from the wide field of general dentistry, and in doing so, transmitted to it the strength and character they possessed, together with their principles, high ethics, and upstanding sense of honor.

Only through their deep understanding of how our specialty should be practiced was it possible for those who succeeded them to devote countless hours to the study and necessary observation of new techniques which have made of orthodontics a magnificent branch of the odontological science with distinctive characteristics.

The success of our meetings is made possible by the magnificent enthusiasm of this group of men, who by their fine example and constant interest in the advance of our specialty, give themselves no rest in their efforts to reach the ultimate perfection. Yet, after long months of strenuous work, they feel fully repaid by the ever-mounting attendance at the meetings and by the opportunity given to all which reverts in the further advance of our science.

The brilliant foundation laid by the men who created orthodontics made it possible for our specialty to reach this triumphant stage. The names of Angle, Dewey, Ottolengui, Ketcham, to name only a few of them, constitute the splendid background of modern orthodontics. The sincerity of their faith, the warmth of their convictions, together with their noble aspiration and staunch principles, won over many a discouraging moment and kept the splendid fires of their achievement shining with such brilliancy that even reaches us to this day, inspiring us to work in a manner that shows we are not letting them down.

Their example must always be before our eyes, since the basic foundation of the entire structure of our specialty lies in the constant study and high ethics which example was set for us by the men who created it.

Once more I wish to extend a most cordial and friendly welcome in behalf of the officers of the A.A.O., as well as of each and every member of this Association, extensive to all who are with us today, with the sincere wish that they may reap the highest honors and triumphs possible in the practice of orthodontics.

May we all continue meeting year after year, and may our reunions be always, just as they are today, a motive of happiness to all.

Thank you.

Chairman Lunsford.—Thank you, Dr. Giquel!

I am glad your lot was that you could be with us instead as of those who could not come.

Next we will have another member of our Interrelations Committee, Dr. Gerald Franklin, of Canada.

Dr. Gerald Franklin.—I assure you that I feel it a great privilege and an honor to be able to say a few words at this International Luncheon of the American Association of Orthodontists, which is dedicated to international good will and friendship.

I speak to you, I am told, as a member of the International Committee. I am also speaking to you as a Canadian. As a Canadian, I suppose I am a guest here as much as members from other lands and other continents. However, I have been a member of this Association for many years and from the very first meeting that I attended I have been received with such warmth, such sincere feeling that I have never felt anything like a stranger. I have never felt anything but as a member of the orthodontic community. I know that my fellow Canadians feel the same way as I do, that they have received the same wonderful hospitality, and that they would want me to express their gratitude and appreciation for the reception that they have had over many years in this Association.

I would like to ask them to rise for a minute so that you may see how many Canadians there are here today. I have also been asked to introduce other guests here today, and I would do so before I continue with the few words I have to say. First of all, I have Professor Klaas Bijlstra, Professor of Ortho-

dontics, University of Groningen, Holland. We have Dr. Ingrid Dowgan Jensen from Copenhagen, Denmark, who is completing her Master's Degree at the University of Michigan this June. We have Dr. Alicia Lazo de la Vega, Mexico City; Mr. Alexis W. Eastwood, from London, England, also completing his Master's Degree.

I said that my fellow Canadians would want me to express their appreciation and gratitude for the reception they have had here.

Some of you may have noticed on the bulletin board at the beginning of the week a sign "Canadian Orthodontist Meeting." I would not like that to be misinterpreted or misunderstood. It was not that the Canadian orthodontists or the orthodontists from Canada who are here at this meeting are holding a meeting of their own. It is only the fact that impending events have made it necessary that the orthodontists in Canada get together and discuss some of the problems that may be facing them within the next few years, as they will be facing us in this country. That is the only purpose of that meeting. But while at this meeting it was brought to our attention that the American Board of Orthodontics had been having a little difficulty in adjusting differences between it and the Council on Dental Education of the American Dental Association because of the fact that the American Board of Orthodontics was certifying men who were not citizens of the United States of America and the constitution and charter of the A.D.A. requires that citizenship. The American Board very graciously and very finely put up a battle for a continuation of that privilege of certifying Canadians.

On the other hand, we as Canadians feel that we have had a wonderful relationship with the American men and we certainly would not want in any way to embarrass either the standing or the future of the American Board of Orthodontics. So at our meeting we passed a resolution to the effect that if the American Board of Orthodontics could issue some modified form of certificate and if that would be acceptable to the Council on Dental Education, the Canadians would be very willing to accept such modified form of certificate. Furthermore, we still feel that we would like to go one step further and I hope you will understand the feeling with which we have made that step. We passed a resolution at our meeting that if in their negotiations with the American Dental Association, the American Board of Orthodontics found that they had to discontinue certifying Canadians, the Canadians would understand the reasons. We understand that as the basis of citizenship; we think that is quite natural with events as they are and we would be quite willing to accept the fact that Canadians would no longer be certified by the American Board and that they could take the necessary steps.

Now I think and I feel that perhaps the second resolution will not be necessary and that the negotiations on the first will be quite satisfactory. But if they are not, please feel free to go ahead and work on the basis of the second resolution.

This meeting here is a meeting of orthodontists practicing in the United States of America, but the results and the effects of this meeting are not limited

to this country. The effects will stretch through the literature to the far corners and distant places in this world of ours. In fact, we cannot estimate what the results will be.

Disturbances in growth and development are not limited to either nations or groups. They appear anywhere and everywhere wherever the field is ripe. Much can be gained from differences that arise through local conditions, through national customs. It is by an exchange of views that progress is made. It is for that exchange of views that we are here.

You guests have come to see what we do, how we do it, and to hear what we think. We hope that you will find the visit, the lengthy travel that it has involved, stimulating and encouraging. In return we hope that you will give us some of your ideas that we may profit, and between us we may perhaps advance the progress of orthodontics.

Thank you!

Chairman Lunsford.—Thank you very much!

We will now have a few words from Dr. Fastlicht, of Mexico City. If you have never been down there you should go to see those fellows. You will never forget it.

Dr. Samuel Fastlicht.—It is a privilege to bring greetings from Mexico to you.

As Dr. Lunsford said Sunday afternoon, these luncheons are part of the good neighbor policy, and I think we all agree with him. He personally is practicing it.

We have been in a very privileged situation to be close to you. I mean in Mexico we are so close to you and we have the opportunity in a few hours, seven hours practically, today to fly from Mexico City to Chicago, and we enjoy these excellent meetings which are getting better every year. We enjoy these distinguished people here at the International Luncheons.

We have been privileged in Mexico in the last few years to have among the dental profession especially a large and fine group of orthodontists who are in Mexico City, who give their lectures, clinics, and read papers. Some of these gentlemen came once and twice and three times, some even more. I would only like to recall a few of these men who have been, the last ten or twelve years, coming down to Mexico. I note here a few, Dr. Spencer Atkinson, Dr. Oren Oliver, Dr. Claude Wood, Dr. Leigh Fairbank, Dr. George Hunt, Dr. Sidney E. Riesner, Dr. George Terwilliger, Dr. E. C. Lunsford, Dr. Jack Salzmann, Dr. Ralph Waldron, Dr. Ernest Johnson, Dr. George Moore, Dr. George C. Chuck, Dr. Earl Shepard, Dr. M. Alden Weingart; and we expect some of you fine orthodontists to come down to Mexico and give us your knowledge as you are giving it in this country; if we cannot offer you the same we can offer you our friendship and make your stay there as pleasant as possible.

Since the last New Orleans meeting—and I was very happy to be there at that meeting—I am looking forward every year to when the next meeting is going to be, and, as Dr. Franklin said, the warm and friendly hospitality is such that I really feel at home.

Thank you very much!

Chairman Lunsford.—Thank you very much!

We are surely glad to have you with us.

Dr. Johnson, will you stand and make that speech you promised to make?

Dr. Joseph E. Johnson.—All right.

Chairman Lunsford.—You know our Secretary, Dr. Moore, and there are many people here that we would like very much to introduce and have talk but we have been splitting minutes trying to rush some so you could get in the business of other meetings. But there is one thing which I think should be done at this time.

We don't have to tell one another that some fireworks might start some day, and frankly, in talking over the matter of this occasion not being set up as a permanent occasion for each annual meeting, I would like to know the pleasure of this group. At this time I would like for everyone who feels that this meeting is doing some good, who enjoys it, and who would like to have it next year, raise his hand. Don't hesitate to express your opinion if you feel it is not worth while and not serving a good purpose. Now maybe we should not have the meeting. All who believe that raise your hands. Well, it appears that we are going to have it.

Thank you! Is there anything relative to this matter or others that someone would like to bring up right now? Can you think of anything, Dr. Ross or Dr. Moore?

Dr. Ross.—No.

Secretary-Treasurer Moore.—No. There is nothing I can think of.

Chairman Lunsford.—The meeting is adjourned.

. . . Whereupon at 2:20 P.M. the meeting was adjourned . . .

The attendance was 215.

Editorial

American Board of Orthodontics Approved by the Council on Dental Education of the American Dental Association

THE Council on Dental Education on October 27, 1950, unanimously voted to approve the requirements of the American Board of Orthodontics. As a result, two resolutions were submitted to the Board of Trustees and the House of Delegates of the American Dental Association. These were as follows:

> WHEREAS, the American Board of Orthodontics petitioned that orthodontics be recognized as a dental specialty and this was approved by vote of the House of Delegates, and
>
> WHEREAS, the American Board of Orthodontics has submitted to the Council on Dental Education its requirements for qualification of its candidates, and the Council on Dental Education finds that the American Board of Orthodontics meets the requirements for the approval of examining boards in dental specialties as approved by the House of Delegates of the American Dental Association on Aug. 6, 1947, therefore be it
>
> RESOLVED, that the American Dental Association approve the requirements of the American Board of Orthodontics.
>
> WHEREAS, the present "Requirements for the Approval of Examining Boards in Dental Specialties" approved by the House of Delegates on Aug. 6, 1947, make citizenship in the United States a requirement for all members of specialty boards, be it
>
> RESOLVED, that the "Requirements for the Approval of Examining Boards in Dental Specialties" be amended to enable the granting of affiliate certificates by those specialty boards desiring to give recognition to residents of Canada who are not citizens of the United States.

These resolutions have now been approved by the Council on Dental Education and the House of Delegates of the American Dental Association.

COUNCIL ON DENTAL EDUCATION—AMERICAN DENTAL ASSOCIATION APPLICATION FOR APPROVAL OF AN EXAMINING BOARD IN A DENTAL SPECIALTY

1. Title and date of the organization of the national society or association which sponsors the board.

   American Society of Orthodontists, organized in 1901, now the American Association of Orthodontists.

2. Title and date and place of incorporation of the Board. (Please attach to this application a copy of the articles of incorporation of the Board.)

   The American Board of Orthodontia, incorporated in the State of Illinois, Jan. 27, 1930, and revised May 9, 1939, as the American Board of Orthodontics.

3. Number of members of the Board, the method of their choice, and the length of their terms.

   Board of Directors shall consist of not less than seven members of the Corporation, elected by the members of the American Association of Orthodontists.

   In case of a vacancy on the Board, the remaining Directors of the Board shall have the power to appoint a new Director who shall serve the unexpired term of his predecessor.

   One Director is elected each year for a term of seven years.

4. Give full details concerning any proposed requirements for the certification under waiver of dentists of recognized standing engaged in special practice at the time of the organization of the Board.

   The applicant for certification prior to the annual meeting of the American Board of Orthodontics in 1953, may, at the discretion of the Board, be certified on his record if he shall have been in ethical and exclusive practice of orthodontics for a minimum of fifteen (15) years and in addition shall present evidence of one or more of the following qualifications:

   (a) Authorship of an adequate number of contributions made before recognized dental, orthodontic, or allied organizations, and which shall have been published in the AMERICAN JOURNAL OF ORTHODONTICS or in *The Journal of the American Dental Association*, or in other journals of satisfactory standing.

   (b) Authorship of a textbook of orthodontics or closely allied fields which has reached at least its second edition.

   (c) A record of outstanding teaching or educational experience.

   Note.—The application forms that will be submitted by those applying for recognition as diplomates of the American Board of Orthodontics are now in the process of revision in accord with requirements specified in this application blank being presented to the Council on Dental Education by the American Board of Orthodontics. These individual

application forms will be available after the April, 1951, meeting of the American Board of Orthodontics, and all those applying for recognition as diplomates after that date will be required to fulfill these requirements except those for whom certain of the requirements are being waived, as indicated in the above section.

5. Give requirements with reference to all candidates for certification concerning:

   (a) Character and professional standing.
   It will also be required of each applicant that he have high ethical and dental standing in his community.

   (b) Citizenship in the United States.
   Citizenship in the United States is required.*

   (c) Membership in the American Dental Association or the National Dental Association. Membership in the American Dental Association or the National Dental Association is required. Also, membership in the American Association of Orthodontists is required.

   (d) Graduation from an accredited dental school. It is required that the school from which the candidate graduates be approved or otherwise recognized by the Council on Dental Education as of that date.

   (e) License to practice dentistry issued by a legally constituted examining board, or other legally constituted authority, in the United States. (Please attach a copy of form required of dentist seeking certification.)
   A license to practice dentistry issued by a legally constituted examining board, or other legally constituted authority in the United States.*

6. Indicate the length and character of training required beyond graduation from an accredited dental school. Describe fully the several methods of securing advanced training which may be acceptable to the Board. (Attach extra sheets if necessary.)

   A period of study after graduation from a dental school of not less than two academic years in graduate or postgraduate courses and/or not less than two years in hospitals, clinics, dispensaries, preceptorships under the direction of certified specialists, or fundamental science laboratories recognized by the Council and by the specialty examining boards as competent to provide adequate training in the special field. This period of study may be pursued wholly in a school giving graduate or postgraduate courses and may or may not lead to an advanced degree; it may also be pursued wholly in hospitals, clinics, dispensaries, preceptorships, or fundamental science laboratories; or it may be pursued partially in schools or preceptorships and partially in other types of institutions.

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*A citizen of Canada who meets all other requirements may be eligible to receive an "affiliate certificate."

One full academic year of graduate or postgraduate study will be considered as equivalent to a calendar year. Teaching or a fellowship in the field of the specialty may be considered in partial fulfillment of this requirement. The character of this period of study will be determined by the specialty examining board subject to approval by the Council.

7. Indicate the length and character of dental practice required in addition to the period of advanced training.

   An applicant for certificate of qualification must have been in the exclusive practice of orthodontics for five years, one full year or more of which may have been spent in exclusive graduate study of orthodontics in a school satisfactory to the Board.

8. Indicate clearly whether or not the applicant must upon certification confine his practice to the specialty. In any event, present fully the reasons for the position taken by the Board.

   The applicant must confine his practice exclusively to orthodontics. It has been the experience of the American Association of Orthodontists that limitation of practice has been found essential if the individual is to attain the highest level of competence.

9. (a) Indicate the subjects and their range required in the written examination prescribed by the Board and the length of time devoted to the entire written examination.
   (See Supplement.)

   (b) Indicate the character of the practical examination prescribed by the Board and the length of time devoted to such examination.

   (See Supplement.)

Supplement to Item 9-a and 9-b:
At least one thesis of not less than three thousand words to be prepared in triplicate and submitted to the Board for examination.
Applicants are instructed and graded on the physical preparation of theses, all of which must be original copies.
These are graded by each Director of the Board *individually* after which a composite opinion is prepared by the Secretary and is brought up for general discussion at the next Board meeting.
Theses are graded on the following counts:

1. Originality
2. Research
3. Composition
4. Scientific and practical implications
5. Summary
6. References

If a thesis is judged unsatisfactory and the rest of the examination is, an applicant may be conditioned and required to prepare another thesis.

Other theses previously prepared for other purposes or other previous writings are not accepted.

Each candidate is given an individual appearance before the Board where he is further examined. Frequently he is given an examination on the subject of his own thesis and his opinions in questions of doubt are discussed. Candidates are always questioned on such subjects as: appliances of choice and why, basic rules employed in diagnosis and treatment planning, differential practices in time and type of treatment, preventive and corrective orthodontics, attitude toward dogmatic principles such as extraction on a large scale, etc.

Each candidate is required to present a set of appliances mounted on casts in order that the Board may not only examine the appliances of his choice but also note his skill as a technician.

In the preparation of the previously specified number of case reports the candidate is required to present a general physical history of each case from birth (inclusive) to date of treatment, also a dental and oral history including habits, health, and early associations which might be contributory to the original condition. There must be a statement of diagnosis and treatment planning, the nature and extent of the general problem, and local involvements if any. Was treatment preventive, corrective, or both, and why the particular appliances were selected.

The written portion of the case reports must be accompanied by radiographic surveys, photographs, and even the actual appliances if available. Perhaps most important of all are the original plaster casts, progress casts, casts made at time of retention, and the most thorough ones will have casts and other records taken five to ten years after retention was removed.

(c) Describe fully any other requirements prescribed by the Board.

Class I: The applicant who shall have been in ethical and exclusive practice of orthodontics for a minimum of fifteen (15) years shall submit a minimum of five case reports and one or more theses of three thousand or more words upon some topic directly connected with orthodontics.

Class II: The applicant who shall have been in ethical and exclusive practice of orthodontics for a period of ten (10) years, shall submit reports of five completed orthodontic cases in addition to such work as the Board may require, including one or more theses of three thousand or more words upon some topic directly connected with orthodontics.

Class III: The applicant who shall have been in ethical and exclusive practice of orthodontics for a period of at least five (5) years, shall submit reports of ten cases in orthodontic practice, five of which must be completed cases, together with such additional work as the Board may require, including one or more theses of three thousand or more words upon some topic directly connected with orthodontics.

10. What fee is charged for certification?
    $100.00 (total fee for application).

11. What type of credential is issued to applicants who qualify for certification? (Please attach a copy of the certificate issued.)
    A certificate, as per attached.

12. Record any special considerations, not specifically covered by the application form, which should come to the attention of the Council. (Please attach to this application any leaflet of information issued by the Board.)
    (See 5-(b) and 5-(e) in relation to the use of the "affiliate certificate.")

13. How many certificates have been issued by the Board prior to the date of this application? (a) Under waiver 78 (b) Under announced requirements 251 (including 10 Canadian citizens).*

14. What is the attitude of the Board toward the licensing or certification of specialists by State Boards of dental examiners under requirements prescribed by law?

    Licensing through examination by a State Board for proficiency is protection both to the profession and the public. State certification of exclusive specialists is unnecessary and would lead to confusion. State certification of nonspecialists would destroy all of the purposes which some of the duties of the Council on Dental Education are responsible to protect.

THE AMERICAN BOARD OF ORTHODONTICS
PRESIDENT, JOSEPH D. EBY.
SECRETARY, C. EDWARD MARTINEK.

Date August 7, 1950

These new requirements will not go into effect until after the applications under the old rule which are now coming in to the Board are processed at its meeting in Louisville.

Any eligible member of the American Association of Orthodontists who wishes to make application under the present requirements may do so by writing to Dr. C. Edward Martinek, 661 Fisher Bldg., Detroit 2, Mich., asking for an application blank and instructions.

These blanks will have to be filled out with the proper information and endorsements and returned to Dr. Martinek by March 25, 1951, which is the deadline for them to be received.

After the meeting of the American Board of Orthodontics in Louisville, April 18 to 22, the new application blank will include the new requirements.

*Certificates have been granted under waiver in only five cases in the last six years and the total number, 329, have been certified during a period of twenty years, or an average of about 16 per year.

Department of Orthodontic Abstracts and Reviews

Edited by
DR. J. A. SALZMANN, NEW YORK CITY

All communications concerning further information about abstracted material and the acceptance of articles or books for consideration in this department should be addressed to Dr. J. A. Salzmann, 654 Madison Avenue, New York City

Abstracts Presented Before the Research Section of the American Association of Orthodontists, May 8, 1950

The Solubility of Enamel as Affected by Cement Under Orthodontic Bands. A Preliminary Report: By David J. Gross, B.A., D.D.S., Clinical Assistant in Orthodontics, Midtown Hospital.

The original work was started at Columbia University and has been continued at the Midtown Hospital in New York City.

The purpose of this investigation was twofold. First, to correlate available information, concerning decalcification of enamel, with the chemistry of the dental cement. Second, to determine the effect of the dental cement, under orthodontic bands, on the enamel of the tooth in the usual orthodontic age group. A clinical investigation was conducted with controlled procedures, and the evidence accumulated to date indicates that the oxyphosphate cement was not responsible for any decalcification.

Tissue Changes Upon the Application of Force on a Molar: By Henry P. Levy, D.D.S., Columbia University, College of Dental and Oral Surgery.

Intraoral impression technique and appliance construction are described. Histologic sections of molar to which spring force had been applied indicated bone deposition and widening of the periodontal membrane on the tension side with a constricted periodontal membrane and indented bony border on the pressure side. Results indicate use of the rat in further experiments on tooth movement to be practical.

Application of the Photoelastic Method of Stress Analysis to Orthodontic Tooth Movement in Bone: By Richard A. Shwalb, D.D.S.

The work was done while a graduate student enrolled in the Division of Orthodontics of the Columbia University School of Dental and Oral Surgery of the Faculty of Medicine.

A transparent Bakelite model of a bone socket was formed and an acrylic tooth model was fitted to it. When the socket model is viewed through a polariscope characteristic photoelastic stress patterns are observed and related to the orthodontic forces applied to the crown portion of the tooth model.

A Study of the Composite Skeletal Patterns of Class I and Class II, Division 1 Malocclusions (Angle): By Charles E. Craig, D.D.S., University of Illinois.

This study was undertaken to determine what basic differences exist between the skeletal patterns characteristic of the two most prevalent classes of malocclusion.

The material included tracings of the lateral cephalometric headplates, taken in occlusion, of 70 children all within six months of their twelfth birthdate. Thirty-four were Class I malocclusions and included 12 males and 22 females. Thirty-six were Class II, Division 1 malocclusions including 17 males and 19 females.

The method involved relating all tracings to a grid of horizontal and vertical lines so that the position of any anatomical point could be recorded as its distance in millimeters from each of a zero horizontal and a zero vertical coordinate. The mean values of all readings for each class were then obtained, and used to plot the position of each anatomical point on the same type of grid. The form and size of the composite pattern so obtained are independent of how the individual tracings are positioned and oriented on the grid.

The anatomical points used to make up each composite were as follows: center of sella turcica; Bolton point; nasion; porion; orbitale; pterygomaxillary fissure; posterior nasal spine; anterior nasal spine; point "A" (Downs); point "B" (Downs); pogonion; gnathion; and gonion.

In addition to these the following readings were made: distal contact of upper first molar; distal contact of lower first molar; incisal tip of the lower central incisor; most anterior point on posterior border of ramus; most posterior point on anterior border of ramus; most anterior point on the cranium; most posterior point on the cranium; most superior point on the cranium; most inferior point on the cranium.

FINDINGS

When the composites of the Class I and Class II, Division 1 cases were compared, they were seen to superpose very closely in all respects, with the definite exception of those points associated with the body of the mandible. While the posterior borders of the rami and the gonial angles almost superposed, the points representing the chin and the anterior surface of the mandibular body of the Class II, Division 1 mandible lay 4 to 5 mm. posterior to those of the Class I mandible. In the same fashion the lower incisors and the lower molars of the Class II composite lay posterior to those of the Class I by approximately the same amount.

When only the males of each Class were compared, and again only the females, the same *general* picture emerged, except that superpositioning of the patterns was not quite so close because of slight differences in absolute size of the smaller groups.

A statistical appraisal bears out the findings that the only significant differences between the composites are those associated with the absolute length of the mandibular body.

DISCUSSION

While this study seems to indicate that the basic reason for the molar relationship of the Class II, Division 1 malocclusion lies in the fact that the mandibular body is shorter in this class than in Class I, it should not be forgotten that this represents only the mean or average picture.

When the individual pattern is studied one is impressed with the variations from a mean which may go to make up the skeletal pattern of the in-

dividual. As Brodie has pointed out, the large and random variations in the positioning and size of the parts making up the whole are to a large extent responsible for the infinite variety in the form and size of the facial skeleton.

It would appear that it is the addition of this wide variation to the tendency for a difference in mandibular body length between classes of malocclusion that is responsible for many of the controversies and difficulties surrounding the assessment of skeletal dysplasias.

A Serial Cephalometric Study of the Growth of the Human Facial Profile: By Milton J. Lande, D.D.S., University of Illinois.

The purpose of this investigation was to study the resultants of various growth rates on the behavior of the facial profile.

The points used to delineate the profile were nasion, anterior nasal spine, subspinale, supramentale, pogonion, gnathion, and gonion. In addition to these the following planes were recorded: sella-nasion, Bolton, and the Frankfort horizontal. Sella-nasion was employed as the basis for superpositioning, and the successive tracings of each individual were registered at nasion. Both angular and linear measurements were made.

Findings were not complete at the time of writing.

The Management of Micrognathia in the Newborn. Report of Two Cases: By Samuel Pruzansky, D.D.S., and Julius B. Richmond, M.D. From the Departments of Orthodontia and Pediatrics, Cleft Palate Center, University of Illinois, Colleges of Dentistry and Medicine.

Micrognathia in the newborn is frequently a difficult problem for the pediatrician. Retrusion of the mandibular symphysis causes the base of the tongue to fall downward and backward resulting in respiratory obstruction which is responsible for the mortality in such cases.

Mechanical appliances have been suggested for the correction of this deformity and in general have proved unsatisfactory. A variety of surgical techniques have been devised to correct the anatomical position of the tongue. In all these procedures the prime motive is to reposition the tongue and mandible more favorably or to stimulate growth of the mandible.

Two cases are presented each with micrognathia and posterior clefts of the hard and soft palates. In the first case micrognathia was associated with a relative macroglossia and its attendant dyspnea. Respiratory difficulties were such as to require a tracheotomy at the age of 3 months. A tracheal tube was maintained in place for a period of several months.

In the second case micrognathia was associated with microglossia, but with a minimum of respiratory obstruction. Neither surgical nor mechanical intervention was necessary in this case.

Oriented cephalometric roentgenograms of both patients were obtained at regular intervals, and these constitute the basis of the present report. This is the first time such cases have been analyzed by means of cephalometric roentgenography.

The roentgenograms revealed a general increase in size, with adequate downward and forward growth of the lower jaw in a period of six weeks, to accommodate the mass of the tongue. Increased airway-space was apparent radiographically at this time.

The findings suggest that if respiratory embarrassment is relieved by tracheotomy normal growth processes will lead to spontaneous resolution. Differences between the two cases in terms of etiology, management, and prognosis are discussed.

Cephalometric, Electromyographic, and Laminagraphic Analysis of Two Cases of Bilateral Subcondylar Osteotomy: By S. Pruzansky, D.D.S., M.S., R. M. Ricketts, D.D.S., M.S., B. G. Sarnat, M.D., D.D.S., and M. B. Engel, D.D.S., M.S., Departments of Orthodontia and Oral Surgery, University of Illinois, College of Dentistry.

The results of bilateral subcondylar osteotomy in two cases of Class III (Angle) malocclusion are presented. In both instances, orthodontic correction was instituted preoperatively. The appliances were maintained in place to serve as splints during the postoperative period. Cephalometric analysis of the results of the orthodontic and surgical treatment is presented. Description of the fate of the condylar fragments following surgery is based on laminagraphic x-ray observation. Kinesiologic studies by means of electromyography are included.

Bilateral fusion of the condylar fragments to the ramus was achieved in one case while in the other fusion was effected only on one side. The functional differences between the two cases are discussed in the light of the total findings.

Variations of the Temporomandibular Joint and Associated Structures as Revealed by Cephalometric Laminagraphy: By Robert M. Ricketts, D.D.S., University of Illinois.

Inaccessibility of the temporomandibular joint and difficulty of correlating its function with the remainder of the mandible has limited the efforts of past investigators. The recent application of cephalometric techniques to laminagraphy offered a means for further research.

In this report the advantages of oriented laminagraphy are discussed together with clinical methods of examination. A head holding device, technique for positioning, and exposure factors for the laminagraph are described. The final analysis is based on tracings of the laminagrams. A series of planes, angles, measurements, and rating scales is offered for the appraisal of the tracings.

A control group of fifty essentially normal patients was analyzed in detail. In a second group, fifty cases exhibiting Class II malocclusion were studied. Laminagrams were obtained with the teeth in occlusion, the mandible at rest and the mouth wide open.

The findings in both groups indicated a similar wide range of variation in structure. However, functional differences were apparent. The following include some of the important observations:

1. The condyle position is more uniform in occlusion than at rest.
2. The position of the condyle is essentially the same in occlusion and at rest in 85 per cent of the normal. This is also the same position for the Class II cases in occlusion. In Class II cases at rest a significant difference is noted in two-thirds of the sampling, the condyle being downward and forward.
3. In a majority of cases the condyle moves past the summit of the articular eminence in full opening.
4. The path of closure of the mandible from rest position is not necessarily upward and forward.
5. The interocclusal space on the average is wider in the Class II group than in the normal.
6. The size, and, to a lesser degree, the morphology, of the condyle in comparison to the fossa seems to be largely an element of "chance."

The discussion suggests possible explanations for the phenomena observed.

A Longitudinal Study of Changes in Arch Form and Length in Human Lower Dental Arches: By Norman T. Speck, D.D.S., University of Illinois.

This investigation was undertaken to determine what changes take place in individual human lower dental arches with respect to arch length and form during the transition from deciduous to permanent teeth.

Plaster models were photographed, using a method of accurate positioning. Tracings for each model were made. A line representing the arch form and length, determined by the centers of adjacent contact areas, was constructed.

The validity of the method was verified by measuring several dimensions on each of twenty-two models and comparing them to the same dimensions on the corresponding tracings.

The material used consisted of fifty odd series of models gathered from: the Merrill-Palmer collection of Dr. Samuel J. Lewis at the University of Detroit; the collection of the Child Research Council at the University of Colorado, directed by Dr. Alfred H. Washburn; the collection of Dr. Joseph T. Cohen in Minneapolis; and the University of Illinois.

Each series usually consisted of three lower models: one model of the complete deciduous dentition, one soon after the lower first permanent molars had erupted, and one after the lower premolars had erupted. Only those series which matured into very good occlusions were used.

This study indicated that the line determined by the approximate centers of the contact areas of the lower anterior teeth usually became the segment of a slightly greater circle as the deciduous teeth were replaced. The posterior segments became more separated. The arch length from the distal of one cuspid to the distal of the other usually increased, while the over-all arch length from the mesial of the first permanent molar to the mesial of the other almost always decreased. This length was usually less than the original length from the distal contact area of one second deciduous molar to the distal contact area of the other.

Studies of Arch Length Through the Transition Period: By Hudson G. Kelley, D.D.S., Indiana University, School of Dentistry.

Arch length is studied from serial models and intraoral radiographs of a cross-sectional sample of unmutilated and untreated cases using methods suggested by Nance. The findings are correlated with facial pattern as described by Downs.

A Study of Intra-Arch Pressure: By John T. Lindquist, D.D.S., University of Indiana.

This is a study to ascertain the intra-arch pressure by means of an instrument which records the amount of force required to push an 0.0015 strip through contact areas. The initial phase deals with the normal range and probable error.

Findings in a Clinical Investigation of Gold Tarnish as Related to Precious Metal Content: By R. A. Hanes, D.D.S., University of Indiana.

Gold bands of two widely varying compositions have been placed in the mouths of 21 patients. Four bands, two of each composition, are placed in each mouth. Bands are given uniform polish at the time of insertion and allowed to remain in service for at least six weeks. After removal the tarnish and corrosion is observed and compared to similar specimens subjected to

laboratory tarnish tests. The purpose of this study is to determine the significance of the gold and platinum content to clinical tarnish of precious metal alloys.

A Study of Tooth Size: By Paul W. Greiwe, D.D.S., M.S., State University of Iowa.

A study was made of 219 individuals, 130 females and 89 males, to determine the average mesiodistal width of certain teeth for males, females, and their composite averages, and to compare the findings with previously existing, comparable studies.

Data were collected from patients in the Department of Orthodontics, College of Dentistry, State University of Iowa. Measurements were taken of the maxillary and mandibular central incisors, lateral cuspids, first premolars, and second premolars. No deciduous teeth were measured.

Widths of Dental Arches and Bigonial and Bizygomatic Dimensions at Certain Ages: By Thomas X. O'Reilly, D.D.S., The State University of Iowa.

The aims of this study were to determine for males and females separately: (1) the width of the upper deciduous arch from 4 through 7 years; (2) the change in the upper deciduous arch from 5 through 7 years; (3) if a definite relationship exists between the bigonial and bizygomatic dimensions and their respective deciduous arch widths at 5 years.

The State University of Iowa Facial Growth Study provided the subjects whose parents are of approximately 95 per cent European ancestry and in an economic status above average.

Materials included casts, standardized posterior-anterior cephalometric x-rays for bigonial measurements and anthropometric measurements of bizygomatic diameters.

Changes in the Dentition From the Early Teens to the Early Twenties—A Longitudinal Cast Study: By Velma P. Brown, D.D.S., and Ingrid Daugaard-Jensen, D.D.S., University of Michigan.

Purpose: To investigate dimensional changes in intercanine width, intermolar width, arch length, and depth of bite occurring with age, using subjects of whom records were obtainable at an average age six years in advance of those reported previously, namely, an average age of 22 years.

Findings: Even though the sample is a small one, it indicates that there was a relatively greater proportion showing decrease than increase.

Conclusion: Decreases in measurement *indicative*, though because of smallness of sample, *not statistically significant.*

News and Notes

Meeting of the American Association of Orthodontists, Louisville, Ky., April 23-26, 1951

It is not too soon to start making plans to attend the next annual meeting of the American Association of Orthodontists to be held in Louisville, Ky., April 23-26, 1951.

The scientific program for the meeting will be completed soon and will appear in an early issue of the JOURNAL. Interesting entertainment will be provided for both the men and the women, and the women are urged to attend. The program of entertainment follows:

Sunday night, April 22

Buffet supper.

Monday, April 23

Trip through the Bluegrass. Also golf.

Monday night: Stag dinner for the men.
Buffet dinner for the ladies.

Tuesday, April 24

Luncheon and style show for the ladies. Men are also invited.

Wednesday, April 25

International Luncheon.

President's reception and dance.

Louisville is centrally located, and so are the hotels available for the meeting. Reservations should be made early in order to assure desired accommodations. The following hotels are available: Seelbach, Watterson, Kentucky, and Brown. All reservations should be made through Dr. John A. Atkinson, 896 Starks Bldg., Louisville 2, Ky. Do not make reservations through the hotels.

The following is a classification of nonmembers who are eligible to attend the meeting of the American Association of Orthodontists, and the schedule of fees which will be charged each group:

A. No Attendance Fee

1. Full-time teachers in University Dental Schools.
2. Full-time graduate or postgraduate students in University Orthodontic Departments.
3. Dentists from outside Canada or the U. S. A. who are members of recognized dental or orthodontic organizations.

B. Attendance Fee $10.00

1. Associate, Junior, or Probationary members of constituent societies of the A. A. O.
2. Those whose applications for membership in constituent societies of the A. A. O. are pending.
3. Associates (in practice) of A. A. O. members.
4. Part-time teachers in University Dental Schools.
5. Part-time graduate or postgraduate students in University Orthodontic Departments.

C. Attendance Fee $20.00

1. Graduates of University Orthodontic Departments who are not members of constituent societies of the A. A. O.
2. Other guests by special permission.

Past Presidents of the American Association of Orthodontists

Past presidents of the American Association of Orthodontists who attended the luncheon for past presidents at the 1950 meeting are shown below.

Left to right, back row: Wm. E. Flesher, Oklahoma City, Okla., H. C. Pollock, St. Louis, Mo., Joseph D. Eby, New York, N. Y., John W. Ross (not a past president), Philadelphia, Pa., Walter H. Ellis, Buffalo, N. Y., Paul G. Spencer, Boerne, Texas, Charles R. Baker, Evanston, Ill.

Left to right, front row: Frederick B. Noyes, Chicago, Ill., Oliver W. White, Detroit, Mich., Leuman M. Waugh, New York, N. Y., John B. Mershon, Philadelphia, Pa., Alfred P. Rogers, Boston, Mass., Benno E. Lischer, St. Louis, Mo.

Research Section, American Association of Orthodontists

A session for the presentation of research papers will be held on Monday, April 23, 1951, at the meeting of the American Association of Orthodontists, at the Seelbach Hotel in Louisville, Ky.

Members of the American Association of Orthodontists, persons affiliated with recognized institutions in the field of dentistry as teachers, research workers, undergraduate or graduate students who wish to participate in this program are invited to submit the following information for the consideration of the Committee, to Dr. J. A. Salzmann, 654 Madison Ave., New York 21, N. Y.: (a) the exact title of your paper; (b) the institution where this work was done; (c) an abstract of your paper of not more than 50 words.

Wendell L. Wylie, Chairman,
J. A. Salzmann,
R. E. Moyers,
Committee on Research,
American Association of Orthodontists.

Prize Essay Contest, American Association of Orthodontists

Eligibility.—Any member of the American Association of Orthodontists; any person affiliated with a recognized institution in the field of dentistry as a teacher, researcher, undergraduate or graduate student shall be eligible to enter the competition.

Character of Essay.—Each essay submitted must represent an original investigation and contain some new significant material of value to the art or science of orthodontics.

Prize.—A cash prize of $500 is offered for the essay judged to be the winner. The committee, however, reserves the right to omit the award if in its judgment none of the entries is considered to be worthy. Honorable mention will be awarded to those authors taking second and third places. The first three papers will become the property of the American Association of Orthodontists and will be published. All other essays will be returned.

Specifications.—All essays must be typewritten on 8½ by 11 inch white paper, double-spaced with 1 inch margins, and composed in good English. Three copies of each paper, complete with illustrations, bibliography, tables, and charts must be submitted. The name and address of the author must not appear in the essay. For purposes of identification, the author's name, together with a brief biographical sketch which sets forth his or her dental and/or orthodontic training, present activity and status (practitioner, teacher, student, research worker, etc.), should be typed on a separate sheet of paper and enclosed in a sealed envelope. The envelope should carry the title of the essay.

Presentation.—The author of the winning essay will be invited to present it at the meeting of the American Association of Orthodontists to be held at Louisville, Ky., April 23-26, 1951.

Final Submission Date.—No essay will be considered for this competition unless received in triplicate by the Chairman of the Research Committee on or before March 25, 1951.

WENDELL L. WYLIE, Chairman, Research Committee,
American Association of Orthodontists,
University of California Medical Center,
San Francisco 22, Calif.

American Board of Orthodontics

The 1951 meeting of the American Board of Orthodontics will be held at the Seelbach Hotel in Louisville, Ky., April 18 through April 22, 1951. Orthodontists who desire to be certified by the Board may obtain application blanks from the Secretary, Dr. C. Edward Martinek, 661 Fisher Bldg., Detroit 2, Mich. Applications must be received not later than March 1, 1951, for consideration at the Louisville meeting.

Northeastern Society of Orthodontists

The next or annual meeting of the Northeastern Society of Orthodontists will be held at the Waldorf-Astoria Hotel, New York, N. Y., on Monday and Tuesday, March 5 and 6, 1951.

Central Section of the American Association of Orthodontists

The following are the newly elected officers of the Central Section of the American Association of Orthodontists for 1951:

President - P. M. Dunn, Minneapolis, Minn.
President-Elect - - - - - - - - - - - - - - - - - P. G. Ludwick, Lincoln, Neb.
Vice-President - - - - - - - - - - - - - - - - - G. H. Williams, Chicago, Ill.
Secretary-Treasurer - - - - - - - - - - - - - - - E. E. Shepard, St. Louis, Mo.

Representative to Board of Directors of A. A. O.:

G. A. Dinham, Duluth, Minn.
Alternate, Copeland Shelden, Kansas City, Mo.
Sectional Editor, Charles R. Baker, Evanston, Ill.

Great Lakes Society of Orthodontists

The following are the newly elected officers of the Great Lakes Society of Orthodontists:

President - - - - - - - - - - - - - - - - - Richard E. Barnes, Cleveland, Ohio
Vice-President - - - - - - - - - - - - - - - - - Bruce D. Foster, Detroit, Mich.
President-Elect - - - - - - - - - - - - - - - - Holly Halderson, Toronto, Ontario
Secretary-Treasurer - - - - - - - - - - - - Carl R. Anderson, Grand Rapids, Mich.

Southwestern Society of Orthodontists

Listed below are the names of the new officers elected at the Monroe, La., meeting Oct. 15-18, 1950:

President - - - - - - - - - - - - - - - - - - Walter Lipscomb, Houston, Texas
President-Elect - - - - - - - - - - - - - - - - Dan Peavy, San Antonio, Texas
Vice-President - - - - - - - - - - - - - - - - - Clarence Koch, Little Rock, Ark.
Secretary-Treasurer - - - - - - - - - - - - Marion Flesher, Oklahoma City, Okla.

Tufts College Dental School

The Department of Graduate Orthodontics, Tufts College Dental School, gave a course in "Applied Cephalometrics" Dec. 18, 19, and 20, 1950.

The following is the program:

Evolution of the Human Dentition. Dr. Ernest H. Hooton, Professor of Anthropology, Harvard University.

Introduction to Cephalographics. Dr. Herbert I. Margolis, Professor of Graduate Orthodontics.

Fundamentals of Roentgenology. Dr. Arthur H. Wuehrmann, Associate Professor of Clinical Dentistry.

Description of Principles and Mechanics of the Margolis Cephalometric Equipment. Dr. Michael B. Collito, Teaching Fellow.

General Review of Anatomy of the Head and Neck. Dr. Harry H. Shapiro, Assistant Professor of Anatomy, Columbia University, College of Physicians and Surgeons.

Some Statistical Correlations. David G. Stahl, A. B., Member, American Statistical Association.

Technique of Cephalographics:

Use of Equipment
Tracings From X-ray Negative
Clinical Instructors:

Dr. Norman M. Cetlin
Dr. Michael B. Collito
Dr. Henry Kaplan
Dr. Lawrence Pearlman
Dr. Suzanne Rothenberg

Interpretation of Anatomy of the Skull as Seen in the Standardized Cephalic Roent genogram. Dr. Shapiro.

Differential Diagnosis of Facial Dental Deformities by the Use of Cephalometric Aids. Dr. Margolis.

Technique of Superimposition of Cephalic Records (Cont'd). Clinical Instructors.

Standardized Clinical Photography. Mr. Percy Hemlow, Official Photographer for Tufts Medical and Dental Schools.

General Seminar. Dr. Margolis and Staff.

American Dental Association

The new 1950 edition of the *American Dental Directory*, listing the names and addresses of all licensed members of the dental profession in the United States, is now being distributed by the American Dental Association.

The first edition of the directory since 1947, the new publication includes the names of 86,876 dentists. Names are listed alphabetically and by states and cities. Each dentist is identified as to his membership or nonmembership in the A.D.A., the character of his practice, the name of the school from which he was graduated, and the year of his graduation.

A new feature of the 1950 edition is a separate geographical list of dental specialists. Other features include lists of state and district dental societies, dental schools, dental publications and their editors, a table showing license reciprocity arrangements among the various states, data on the distribution of dentists throughout the nation, a list of requirements for licensure as established by state examining boards, and a brief history of the A. D. A.

Copies of the new directory are available at a cost of $12.50 each through the A.D.A. Order Department, 222 East Superior St., Chicago 11, Ill.

Also available by subscription is a new cumulative supplement to be issued quarterly to keep the directory up to date.

Communities of all sizes can fluoridate their water supplies as a weapon against tooth decay at annual costs ranging from four to 14 cents per person, *The Journal of the American Dental Association* reported recently.

Advice on the most effective and economical methods for adding fluorides to central water systems came from three dental health authorities on the basis of their experience in Wisconsin, a pioneer in the process.

More than 75 cities and towns in the state within the past five years have installed or planned the installation of fluoridation equipment, designed as a far-reaching attack on dental decay, mankind's most common disease.

The men are Dr. F. A. Bull, of Madison, Dental Director of the Wisconsin State Board of Health; Dr. T. A. Hardgrove, of Fond du Lac, Chairman of the Wisconsin State Dental Society's fluorine study committee, and Dr. J. G. Frisch, of Madison, Chairman of the Dane County Fluorine Committee.

Pointing out that the American Dental Association and the United States Public Health Service have recommended the addition of fluorides to public water supplies as a dental health measure, the three emphasized that communities of all sizes can benefit from the process, providing only that the area has a central water system.

"The fact that many small communities of less than 1,000 population are accurately and economically adding fluorides to their public water supply should dispel the fear that this public health program can only be had in large communities that employ engineering personnel," they said.

About initial cost, they said that equipment for adding fluorides to water varies from $500 in small communities to several thousand dollars in large cities.

However, they pointed out, in medium-sized and large cities that already have equipment for feeding such purifying chemicals to the water as alum, lime, carbon, and chlorine, no other special equipment is needed for adding fluorides.

They said there are several types of standard mechanical equipment available for fluoridation made by companies that specialize in so-called feeder machines.

As to the type of chemical that should be used, the authors reported that sodium silicofluoride appeared to be the most practical and economical for medium-sized and large cities. They reported that use of this chemical should not exceed four to five cents per capita annually.

For smaller cities, they said that experience in Wisconsin indicated that sodium fluoride or hydrofluosilicic acid appeared as the best solutions. They estimated annual costs at 10 to 14 cents per capita. These fluoridating agents were recommended for smaller communities because neither skilled engineering personnel nor constant supervision is required for the process.

"The mixing and maintenance of a proper strength solution can be taught to any intelligent employe in the water department of a small community," the health authorities said.

The number of installations required for an area depends on the nature of its water supply, they reported.

"Most large cities use surface water supplies, and it is generally possible to fluoridate all of the water with one installation," they said.

"Communities having several wells that are pumped into the water main at different locations will need an installation for each well.

"However, should more installations be needed for a large community, the expense of the extra equipment is not an important factor as the per capita cost is small, and skilled personnel, experienced in the feeding of chemicals into a water system, is available."

The role of modern dentistry in the total rehabilitation of young men and women with cleft lip or cleft palate so they can lead happy useful lives was revealed today in *The Journal of the American Dental Association.*

Asserting that more children are born with this condition than any other congenital deformity, Dr. Herbert K. Cooper, Director of the Lancaster, Pa., Cleft Palate Clinic, estimated that at least one out of every 700 children has this handicap.

"The most frequently found condition has been getting the least amount of attention," he said. "The citizens of this country should be as well informed on the subject of cleft palate as they are on poliomyelitis, cerebral palsy and rheumatic fever."

Citing cases of patients treated at the clinic, Dr. Cooper told of a youth, 17, born with a cleft lip and cleft palate. During infancy, surgery had been performed, leaving him with a flat upper lip and very poor speech.

"He shunned all social contacts," Dr. Cooper said. "He left high school and was driving a truck. His whole family was extremely upset."

Dr. Cooper said the youth was given a medical, dental, speech, and psychological examination. An appliance was constructed to build out the upper lip and cheeks and thimble crowns were placed on his five remaining upper teeth. At the same time, he was given speech instruction.

The boy was persuaded to finish high school, Dr. Cooper said, and he then was admitted to college. He added:

"The first two years were quite difficult for him because of his social adjustment problem, which he gradually overcame. Then he was taken into a fraternity and was graduated on the dean's list. He is now attending law school in a large university."

Notes of Interest

Dee V. Anderson, D.D.S., announces the opening of his office at 330 North Garfield Ave., Alhambra, Calif., practice limited to orthodontics.

Dr. George Forrest wishes to announce the opening of his office at the Medical Arts Bldg., 17 Pine St., Glens Falls, N. Y., practice limited to orthodontics.

Dr. John W. Ross wishes to announce that he is opening a branch office in the Bryn Mawr Medical Bldg., County Line Road and Lindsay Ave., Bryn Mawr, Pa. Dr. Martha T. Torok is now associated with Dr. Ross and Dr. John V. Mershon.

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